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THE
PEDAGOGICAL SEMINARY.
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EDITORIAL.

Dr. Forbush presents the results of a wide experience and observation in organizing boys' clubs. In Boston and elsewhere he has done very valuable organizing work, for which he has a veritable genius. While he has put himself well abreast of the latest special literature bearing upon the subject, his article is essentially practical and cannot fail to be of great service to all interested in this work whether from the religious, social, or pedagogical point of view.

It is an interesting and much discussed question what the pedagogical value of myth really is for children. Dr. Chamberlain, whose valuable new book is elsewhere reviewed in this number, has given us a luminous account of the present condition of this problem in the German schools.

It has long been a desideratum to have the large body of child study material carefully gone over to see if there was already a consensus of opinion large and broad enough to be made the practical bases of education. For years there has been great demand for this work to be undertaken, but the time was hardly ripe. Now, however, the vast mass of material begins to reveal definite and unmistakable conclusions. Although the work of drawing these and of rightly evaluating all the items is a vast one, which may well transcend the powers of any one man, the attempt to do so is here made by an experienced mind, well poised, and safe from a conservative stand-

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point, but thoroughly progressive and carefully informed in the new child study. The Editor considers that the first effort to sugar off the practical results of this copious literature could hardly have fallen into better hands and especially commends Mr. Bryan's article to the thoughtful perusal of all school men.

Mr. Guillet spent several years at Clark University in the attempt to make a very concise digest of all the valuable literature upon animal instinct and to group this matter according to the ascending stages of evolution. The work itself, now nearly or quite completed, will make a volume, but Mr. Guillet seeks in this paper to summarize his leading conclusions for the benefit of educators and gives us an interesting and suggestive article.

The usual literature, book notes, and news follow.

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THE SOCIAL PEDAGOGY OF BOYHOOD.

By William Byron Forbush, Ph. D.

There is a time when a boy emerges from the narrow bounds of the school and the home, and seeks the larger social world of the street and the "gang." The instinct is legitimate and masterful and full of possibilities of danger or help. Its recognition is recent and literature upon it is slight. It constitutes the most pressing problem of adolescence.

The solution of the problem may be sought from three sources: from a study of boy-life, from a study of the ways in which children spontaneously organize socially, and from a study of the ways adults organize for the benefit of boys. Such studies are the contents of the first three chapters. The fourth and last is a summary of conclusions.

I.

Boy-Life.

The boy becomes a social being by development. It seems necessary to gather and summarize the results of child study which show how that development is made.

The birth of a boy is not his beginning. The pre-natal child passes up through every grade of animal life from the simplest and lowest to the highest and most complex. After birth he continues his evolution, in which he has already repeated the history of the animal world, by repeating the history of his own race-life from savagery unto civilization.

The period of a boy's life is roughly divided as follows: infancy, from birth to seven; childhood, from seven to twelve; adolescence, from twelve to manhood.

Physically, infancy is characterized by the most restless activity. Mentally, the infant boy appears to consist mostly of a bundle of instincts. Of these the simpler ones of grasping, locomotion, curiosity, etc., are means of self-education, but the most marked is imitation. "These instincts are implanted for the sake of giving rise to habits. This purpose accomplished, the instincts, as such, fade away." The most important task at this period is, by the imitation of correct models to evolve the great habit of obedience. Neither children nor cities should be allowed to grow up before they are governed.

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Childhood is marked by less violent but more self-directed physical activity, the development of the higher instincts rather than those of a merely animal quality, and the emergence of the memory, the emotions, the imagination and the self-consciousness. This period is a continuation of the first rather than the introduction to the third. These first two form that age of immaturity and dependence, longer than that granted to any other of the animal order, given to childhood for its protection and preparation in the home and the school for the larger tasks of social and independent manhood. The instinct which is most prominent in this period is the play-instinct. It is both expression and means of education. It expresses the awakening instincts, and so teaches us what the child's nature is. It is the natural way by which the child finds out things. The child's manner of play is distinctive. The infant plays alone, by creeping, shaking, fondling, etc., developing the simpler instincts through curiosity and experiment. The boy-child begins to imagine and to personify in his games, and wishes often to play with others. But that this social instinct is as yet incomplete is shown by the fact that in games it is each one for himself, the team-work so admirable among young men is entirely lacking, and even in playing team-games each player seeks his own glory, and repeatedly sacrifices the welfare of the team to himself. To take advantage of this play-instinct, which enfolds in itself so many other instincts, is the newest problem in education.

During these two periods the boy has been changing from a bundle of instincts to a bundle of habits. The trails are becoming well travelled roads. Boyhood is the time for forming habits, as adolescence is the time for shaping ideas. This is the era for conscience-building, as the later is the era for will-training. Politeness, moral conduct, and even religious observance may now be made so much a matter of course that they will never seem foreign.

One reason why this is true is because verbal memory is more acute than at any other period. "The best period for learning a foreign language ends before fourteen." This power of absorption forms the characteristic of this second period. Our duty now is to feed the child. The boy can absorb more nutriment and also more information, more helpful or hurtful facts, more proverbs of wisdom, more Scripture and hymns, for future use, than ever again in his life. In this absorptive rather than an originative quality is the strong distinction between this period and that which follows.

The boy of this age is not mere animal. His emotional instincts are growing. And of these love is one of the deepest and one of the first. Love for mother, for teacher, for some older friend

who is an ideal, love for truth which is so startling in the unperverted child, love for God and good things as He and they are understood, these are all characteristic of the warm-hearted days of boyhood.

In summary, we may call this the Old Testament era of the boy's life. The Bible, that marvellous manual of pedagogy, has been thought to reflect in either Testament childhood and adolescence. "The key of the Old Testament," says Sheldon, "is obedience." This we have said is the key to childhood. The law must come before the gospel, the era of nature before the era of grace. Those old heroes were only great big boys, and it is an underlying sympathy with them which explains why boys of this age prefer the Old Testament to the New. There are sound reasons why it should first be taught them.

Especially in religious ideas are boys under twelve much like the ancients. Many times they actually pass through the stages of religion passed through by primitive peoples, namely, nature worship, mythology, fetishistic superstition. The contents of many a boy's mind and pocket reveal a recourse to charms, incantations and anthropomorphisms. At the best the God of one's childhood is but a great man, and it is a solemnizing fact that He often bears the face and nature of the child's own earthly father.

Adolescence is bounded at the beginning by approaching puberty, and at the end by complete manhood. The so-called American boy, who was really a Persian in his love of war, or an Athenian each day telling or hearing some new thing, or a Hindu in his dreams or a Hebrew in his business sense, is coming down through the millenniums, and has reached the days of Bayard and Siegfried and Launcelot.

It is the time of change. By fifteen the brain stops growing, the large arteries increase one-third, the temperature rises one degree, the reproductive organs have functioned, the voice deepens, the stature grows by bounds, and the body needs more sleep and food than ever before. It is the emotional age. No songs are too gay, no sorrows ever so tearful. It is the time for slang, because no words in any dictionary can possibly express all that crowds to utterance. It is the time for falling in love most thoughtlessly and most unselfishly. The child wants to be entertained constantly. This is a natural condition. "It is as necessary to develop the blood-vessels of a boy as crying is those of a baby." It is the enthusiastic age.

It is a time of intense intellectual curiosity. Now is when boys want to roam and to run away to sea. They are simply seeking their place in the world. It is the time of stubborn doubts. As Gulick says, the boy "is a skeptic and a partisan at the same time."

This widening of interests, emotional and intellectual, is accompanied by a sudden social broadening. Adolescence has been called an unselfing. There comes both a clearer recognition of one's self and a finer recognition of others. There is a yearning to be with and for one's kind. This is seen in the growing team-work spirit in games, in the various clubs which now spring up almost spontaneously, in the slowly increasing interest in social gatherings and in the other sex.

This is also a time of moral activity and ideals. "A new dimension, that of depth, is being added." No boy, no matter what he may seem, is at this time careless of life's questions. Many on conversion at this age are eager to exercise their social consciousness by becoming ministers or missionaries or heroes.

But the peculiarity of this period that most attracts attention is that of crisis. It seems to be well proven that there comes a time in the adolescence of almost every boy and girl when the various physical and moral influences of the life bear down to a point of depression, and then rise suddenly in an ascending curve carrying with them a new life. There is first a lull, then a storm, then peace, what results is not boy but man. This crisis, in religious matters, is called conversion, but is by no means confined to or peculiar to religious change. "It is," says Dr. Hall, "a natural regeneration." If the Hughlings-Jackson three-level theory of the brain be true, there is at this time a final and complete transfer of the central powers of the brain from the lower levels of instinct and motor power to the higher levels. "It is," says Lancaster, "the focal point of all psychology." Dr. Starbuck's careful though diffusive study shows that this change is apt to come in a great wave at about 15 or 16, preceded by a lesser wave at about 12, and followed by another at about 17 or 18. It consists in a coming out from the little, dependent, irresponsible, animal self into the larger, independent, responsible, outreaching and upreaching moral life of manhood.

Next to the physical birth-hour this hour of psychical birth is most critical. For "at this formative stage"—I quote from the Committee on Secondary Education—"an active fermentation occurs that may give wine or vinegar." "This," says President Hall, "is the day of grace that must not be sinned away."

We are evidently approaching the end of the plastic period. The instincts have all been given. The habits are pretty well formed. There is plenty of time to grow, but not much to begin. Now the father looks one day into the eyes of what he thought was his little boy and sees looking out the unaccustomed and free spirit of a young and unconquerable personality. Some mad parents take this time to begin that charming task of

"breaking the child's will," which consists mostly in breaking his back. But when a boy gets too big to be licked he is too big to be mentally or morally coerced.

As to the boy who has now come into view, we hesitate whether more to be afraid of him or to be alarmed for him. He has such a capacity for crazy plans and harmful deeds. It is some relief to remember that these dangerous manifestations are as temporary as the caperings and rushings of an untamed colt.

Our last glimpse of this conservatory of young life shows us the habits full-grown and the instincts budding successively into fresh ones. These buddings or "nascencies" I will refer to again. Here is a heap of knowledge, much of it undigested and some of it false. Here, too, if he has passed the crisis I spoke of, is the little new plant of faith. There was a faith which he had before which he borrowed from his mother, but a man cannot live his whole life long on a borrowed faith. It is new, it is little, but it is his own, and it is growing. But here is something strange. Strong, vigorous, fearful at first and afterward dangerous looking; here is a plant that has suddenly taken root and grown bigger than all. It is the Will. That is what all this storm and stress means. This is what is born in the emergence from the dependent to the independent being. Shall we pull it up and throw it away? What! and leave him a weakling child through life? Shall we bind it down? What! and maim him forever? Let it grow; but let it grow properly. This Will is dangerous but needful. You can't have births without some risks. If this boy is ever to be a man, it will all depend on what is done with his Will.

Social pedagogy in dealing with a being who is now coming to have a social nature pays its first and chief attention to will-training. For there is no more important, more neglected subject. It is an art, as one tersely says "which has no text-book and of which it is impossible to write one."

The public school fails in will-training because it gives the will no exercise. "Our schools," says William I. Crane, "permit us to think what is good but not to do what is good." The home, especially the city home, fails for the same reason. The child's attention has been shared by a thousand sights, nothing holds him long, and he cannot find ways to use his instincts actively. The church fails, because it has tried the wrong thing: it has taught the children to examine their spiritual interiors and to sing "Draw me nearer till my will is lost in thine" and not to hallow their wills, as Phillips Brooks wisely said, "by filling them with more and more life, by making them so wise that they shall spend their strength in goodness."

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General Francis A. Walker was the first to show just what the country did for the boy. He used the simple illustration of the squirrel seen on the way from school, the trap designed and built for his capture and the successful result. There was a single keen interest, a natural instinct awakened, that instinct exercised by a voluntary muscular effort carrying an originative task to completion: result, not merely a captured squirrel but strengthened will power. Johnson, our authority on play, says: "There are no really good men without strong wills, there are no strong wills without trained muscles. We learn to do by doing. We learn to will by willing."

With this hint social pedagogy goes to work. "You can only get a purchase on another's will," James says, "by touching his actual or potential self." Hall says, "Will is only a form of interest." We trained the boy's conscience, his passive self, by filling his mind with rules, but we can train his will, his active self, only by interesting and making active his instincts. Lancaster says, "The pedagogy of adolescence may be summed up in one sentence, Inspire enthusiastic activity." I spoke of the "nascencies" of instinct. Every little while an instinct pops up in a boy's mind and feebly feels for utterance. If it is not noticed it sinks back again to rest or it becomes perverted. All boys have the constructive instinct. If it is neglected it either fades away or becomes the destructive instinct. Some wise man sets the boy to whittling or modelling and the instinct becomes an ardent interest. Such happy alertness, thinks Mosso, was the encouragement that made a Raphael and a Da Vinci. It will satisfy us if it gives our boys the good instead of the evil will.

It is also a curious fact that a multiplicity of interests just at this time multiplies rather than diminishes the power of acquisition. Thus social pedagogy may use many instrumentalities to encourage the interested and self-directed activities of boys in maturing their wills into principle and character.

The results of this chapter suggest that the last nascencies of the instincts, the completion of the habits, the psychical crisis and the infancy of the will, all coincident with the birth of the social nature, together form a period of danger and possibility in boy life. For helping this age, social pedagogy, the combination of educative forces in a social direction, is a new and most important science.

II.

Ways in which Boys Spontaneously Organize Socially.

The interests of infancy are all in the home. This is the parent's unhampered opportunity. During boyhood the home

shares with school the boy's time. But with the development of his social instinct by means of play new acquaintanceships begin to share the crevices of his time. First he plays at home with a chosen companion or two, then he ventures forth to the ball field and the swimming hole with a larger group, finally his journeys are farther, his stay is longer, the group is more thoroughly organized and a mob spirit is apt to arise which passes from unorganized play and sportive frolic to barbarous and destructive deviltry, and we have, in city and country, the fully developed "gang." Ofttimes the watchful parent can prevent the evolution from becoming complete and may redeem and transform its energies, but the fact that this is not everywhere being done gives room for new and vigorous forms of educative philanthropy.

Convincing proofs that this social instinct craves development as much as that of adult man, and suggestive indications of the ways in which it turns and may best be turned are seen in a study of those interesting organizations which boys themselves spontaneously create. Dr. Henry D. Sheldon's questionnaire as to the spontaneous institutional activities of American children furnishes me my figures; but I have arranged them to bear simply upon the point we are considering, adolescent boyhood. How general the expression of this social instinct is is seen in the fact that of 1,034 responses of boys from 10 to 16, 851 were members of such societies. This did not include societies formed for boys by elders, and it did include many boys who from isolation never had the slightest chance for such society-making.

The study of the societies which children spontaneously form ought to be more suggestive than that of those which elders in their adult wisdom or ignorance form for them. If will is only interest, interest should be the best criterion of how to help the will. From 1,022 papers collected there were reported 862 societies, 64 boys belonged to more than one society. The ages were 10 to 17. Of 623 societies, fully described—

Those having secrets numbered 23 or 3½%.

Social clubs (for "good times") numbered 28 or 4¼%.

Industrial organizations numbered 56 or 8½%.

Philanthropic associations numbered 10 or 1½%.

Literary, art, and musical clubs numbered 28 or 4¼%.

Predatory societies (migratory, building, hunting, fighting, preying) numbered 105 or 17%.

Athletic and game clubs numbered 379 or 61%.

The ages 11, 12, and 13 were the ages of the largest number of societies formed, the numbers being: at 8 28, at 9 44, at 10 118, at 11 155, at 12 164, at 13 188, at 14 90, at 15 80, at 16 34, at 17 11.

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We notice the following facts:

1. The period of greatest activity of these societies is between 10 and 15, over 87% being formed during that period, only 7% before 10, and only 1% being formed at 17. This is accounted for by the growth of the social disposition with adolescence and, in a lesser degree, by the fact that some of the earlier societies persisted later, and by the fact that in later years the church and school societies formed by elders take the place of many voluntary societies.

2. Physical activity is the keynote of these societies at all ages. The predatory and athletic societies number 77%. Add to these the industrial and we have 85½% of the whole.

3. The literary, art, and musical interests are very small, while the philanthropic and religious are infinitesimal.

4. The interest in athletic societies increases by leaps from 8 to 13, and then diminishes with even greater rapidity toward the end, while the interest in literary societies, though never very large, increases with increasing maturity. The predatory societies are at their highest at 11, and thence gradually disappear.

The boys' societies are largely summer societies. Had the figures been so classified as to show this accurately we should perhaps find that the literary and philanthropic features do really have some importance in the months when outdoor activity is restrained. With this limitation recognized, we must still believe that physical activity is the interest central throughout the year.

5. Girls and boys do not naturally organize together. Dr. Sheldon's paper shows that the interests of boys and girls in their societies are nowhere parallel. Girls form three times as many secret societies as boys, five times as many social societies, three times as many industrial, twice as many philanthropic, and three times as many literary, while the boys form four times as many predatory and seven times as many athletic societies as the girls. Physical activity was the feature in 10% of the girls' as against 77% of the boys' societies. 384 girls as against 257 boys were found in societies formed for children by adults. "Girls are more nearly governed by adult motives than boys. They organize to promote sociability, to advance their interests, to improve themselves and others. Boys are nearly primitive man: they associate to hunt, fish, roam, fight, and to contest physical superiority with each other."

If these facts mean anything in the way of instruction, they mean this:

1. Boys should be sought just before their own social development tends to become dangerous, at about 10, and held until the organizing craze is over and the years of adolescence are

well past. Dr. Sheldon found 257 boys in societies formed for them by adults, of whom all but 40 were from 10 to 15, but only 7 of whom were beyond 15. Is it not almost more dangerous to hold a boy till the most critical year of his life and then let him go than not to touch him at all?

2. Physical activity must be made the basis of social work for boys, if it is to reach and hold their natural interests. Other things may be accepted or endured by them, but this is what they care for. A contact which begins with athletics, walks, physical development and manual training may ripen into the literary, the scientific, the ethical and the religious influences. But it would seem wise to utilize the ruder instincts which are on the surface before reaching down to the deeper ones.

3. Wherever possible, girls and boys should be organized separately. They are not yet interested in the same things nor in each other. The boys should have male or at least virile leaders. The ideals and capabilities of most women leaders do not point to the highest efficiency with boys of the adolescent period, while a manly man with some slight athletic prowess, a willingness to answer questions and patience to guide by adaptability rather than by domineering, can do almost anything with a group of boys.

III.

Social Organizations Formed for Boys by Adults.

As detailed descriptions of the many methods that are being used to help boys are found in the literature of the different movements, it seems sufficient to give the briefest analysis of their worth, with a fuller discussion of plans that are especially suggestive. For this analysis I have devised a system of rubrics suggested by a table in Mr. George E. Johnson's "Education through Plays." The rubrics are as follows:

I. Age to which the method is in its present form appropriate, indicated by numbers from 10 to 17.

II. Number of boys to which the method applies, indicated by numbers.

III. The Instincts made use of, the emphasis—small, moderate or large—being indicated by increasing sizes of type, as acq, *acq*, ACQ:

acq–acquisitiveness, the collecting and appropriating instinct
chs–chastity
cln–cleanliness
con–constructiveness
cur–curiosity, desire to find out
drm–dramatic instinct, desire to personify, imaginative imitativeness

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eml–emulativeness
img–imaginativeness
imt–imitativeness
love
loy–loyalty, the mixed instinct of love, proprietorship and responsibility (as felt in the college fraternity)
phy–physical activity
play
pug–pugnacity, the desire to overcome
soc–sociability, the desire to be with others as distinct from the love-instinct, which involves the desire to serve.

IV. Kind of education afforded, indicated by letters, the amount shown by increasing sizes of type, as p, *p*, and P.
p–physical (bodily strength)
ath–athletic (bodily agility)
m–manual (mastery of hand)
i–industrial (mastery of trade)
c–civic
l–literary
art–artistic (including dramatic, literary and pictorial)
s–scientific
alt–altruistic (social and philanthropic)
e–ethical
r–religious.

V. Part of the boy trained, the value of the training indicated by sizes of type as before:
b–body
i–intellect
f–feelings
w–will
r–religious nature.

VI. An estimate of the proportion of the boy's interests excited (with the presumption of a possible maximum of 50 in 100), the amount indicated in numbers meaning per cents.

This analysis is based on the belief that, no matter what the announced aim of any form of help, the problem is one, namely that of manhood-making. So, while the list is classified by certain general characteristics, each plan is measured by its applicability to the entire boy.

NOTES.

a. Discussed at length later.
b. A plan that has been popular and that, with other features, is often useful. The difficulties are the getting of a good drill master who is anything more, the expense, the monotony of drill, the jealousy for office, and the development of drill in the public schools.
c. Devised by Charles W. Birtwell of the Boston Children's Aid Society.

CHART

NAME AND KIND OF ORGANIZATION.	AGE.	NO. BOYS.	INSTINCTS UTILIZED.	KIND OF EDUCATION.	PART DEVELOPED.	% OF INTERESTS.
I. Physical Training Methods.						
Boys' Branch, Y. M. C. A. *a*	10-17	50-300	CHS,CLN,EML, *imt*, *love*, loy, PHY, PLAY, PUG, SOC	P, ATH, m, i, c, l, alt, *e*, *r*	B, i, f, w, *r*	25
Summer Camps (and Vacation Schools) *a*	12-17	6-40	acq, *chs*, CLN, *con*, *cur*, EML, *imt*, *love*, loy, PHY, PLAY, PUG, SOC	P, ATH, *m*, *i*, s, *e*, *r* (?)	B, i, f, W, *r* (?)	25
The Boys' Brigade *b*	10-17	20-50	chs,CLN,EML,IMT,loy,PHY, PUG, *soc*	ATH, *c*, l, alt, *e*, *r*	*b*, r	10
II. Manual Training Methods.						
The Play-School *a* (Johnson's)	10-17	10-40	ACQ, chs, *cln*,CON, CUR, drm, EML, IMT, love, *loy*, PHY, PLAY, PUG, SOC	P, ATH, M, *i*, *c*, *l*, *art*, S, p, *e*	B, I, *f*, W	40
The Play-Work Guild *a* (Clark's)	10-17	8-10	*acq*, *cln*,CON,CUR, drm, EML, IMT,*love*,LOY,PHY,PLAY, PUG, *soc*	*p*, *ath*, *m*, i, *c*, *l*,*art*, S, p, *e*	B, I, *f*. W	35
The Captains of Ten *a*	10-14	10-50	ACQ, *cln*, CON, CUR, drm, EML,img,IMT,LOVE,LOY, PHY, PLAY, PUG, SOC	*p*, ath, *m*, l, c, *l*,art, s, ALT, *e*, R	*b*, *i*, F, W, R	40
III. Literary Methods.						
Debating Clubs, Lyceums, School Societies	14-17	20-100	*cur*, drm, EML, *imt*, loy, PUG, *soc*	C, *l*, art, s, alt, *e*	I, f, w	10
The Home Library System *a c*	10-17	4-10	CLN, *cur*, IMT, LOVE, LOY, PLAY, *pug*, *soc*	c, L, ART, S, *e*, r (?)	I, F, w, r (?)	20
IV. Social Methods.						
The Mass (big) Clubs *a*	10-16	100-3000	chs, CLN, *con*, cur, drm, EML, imt, love, loy, PHY, PLAY, PUG, SOC	P, ATH, man, i, c, l, art, s, e	B, i, f, *w*	30
The Group (small) Clubs, see Play-School and Play-Work Guild						

CHART—continued.

NAME AND KIND OF ORGANIZATION.	AGE.	NO. BOYS.	INSTINCTS UTILIZED.	KIND OF EDUCATION.	PART DEVELOPED.	% OF INTERESTS.
V. Civic and Patriotic Methods.						
The City-History Clubs *d*	14-17	10-50	cln, *cur*, *soc*	C, *l*, *alt*, *e*	I, F, w	20
The Gill School City *e*	14-17	10-75	CUR, *drm*, EML, img, *loy*, play, PUG, *soc*	C, *l*, *alt*, *e*	I, F, w	20
The George Junior Republic *f*	10-17	40-100	cln, con, *cur*, DRM, EML, img, *imt*, love, LOY, PHY, *play*, PUG, SOC	C, P, ath, m, l, S, *l*, alt, e, *r*	B, *i*, f, W, r	30
Juvenile Leagues, Street Cleaning	10-17	1-1000	CLN, eml, *imt*, loy, phy	C, e	F, w	5
Sons of the Revolution, and other genealogical and patriotic clubs	10-17	20-40	cln, cur, img, IMT, love, loy, soc	C, *l*, alt, e	*i*, F	20
VI. Science Study Methods.						
The Agassiz Association (nature study)	12-17	4-40	ACQ, con, CUR, *eml*, *imt*, loy, *phy*, *pug*, *soc*	p, m, S, e	*b*, I, *f*, w	20
VII. Hero Love Methods.						
The Knights of King Arthur *a*	12-17	20-40	CHS, cln, *con*, CUR, DRM, EML, IMG, IMT, LOVE, LOY, PHY, *play*, pug, SOC	p, m, C, l, art, ALT, E, R	b, *i*, F, *w*, R	30
Hero Scrap Books, Record of Virtue Contests, etc.	10-17	4-200	ACQ, *cur*, EML, pug	m, C, *l*, *art*, E	*i*, F, w	10
VIII. Ethical Methods.						
Mercy, The Band of Mercy and the Animal Protective League	10-14	10-50	LOVE	*alt*, *e*	F	5
Purity. The Knights of the White Cross, Loyal Temperance Legion, etc.	10-17	10-50	CHS, *cln*, cur, pug, *soc*	E, r	i, F, w, r	5
Temperance. The Band of Hope, Good Templars, and all open and secret children's temperance societies (including the L. T. L.)	12-17	20-75	chs, cln, *cur*, DRM, loy, play, *soc*	c, *l*, alt, E, r	i, F, w, r	5
Saving. The Stamp Saving Society, etc.	10-17	1-1000	ACQ, eml			

CHART—concluded.

NAME AND KIND OF ORGANIZATION.	AGE.	NO. BOYS.	INSTINCTS UTILIZED.	KIND OF EDUCATION.	PART DEVELOPED.	% OF INTERESTS.
IX. Religious Methods.						
Junior Brotherhoods of St. Andrew, and of Andrew and Philip *a*	10-17	10-100	*chs*, cln, *eml*, IMT, LOVE, LOY, *phy*, play, SOC	p, *ath*, c, l, art, s, ALT, E, R	b, i, F, w, R	25
The King's Sons	10-14	10-40	*chs*, cln, eml, IMT, LOVE, loy, SOC	ALT, R	F, R,	10
The Junior or Intermediate Endeavor Society, Epworth League, etc. *a*	10-14	10-200	chs, cln, *eml*, IMT, LOVE, *loy*, play, pug, *soc*	ALT, *e*, R	i, F, w, R	15
Catechism Classes *a*	10-17	6-50	chs, cln, eml, imt, love, soc	alt, *e*, R	I, *f*, R	5
Missionary Bands *a*	10-14	20-50	cln, *cur*, *imt*, LOVE, loy, phy, soc	m, ALT, *r*	b, *i*, F, r	10
The Sunday School *a*	10-17	any no.	*cln*, *cur*, eml, LOVE, *loy*, *soc*	alt, *e*, R	I, F, w, R	10
The Church Service (including the Boy Choir, the sacraments, etc.)	10-17	any no.	*cln*, *cur*, IMG, LOVE, *loy*, soc	*art*, *alt*, *e*, R	I, F, w, R	10
Although not the subjects of special study, let us analyze for comparison the Home and the Public School *a*						
The Home	all	1-10	ACQ, chs, *cln*, CON, *cur*, *eml*, img, IMT, LOVE, LOY, PHY, PLAY, pug, soc	P, *m*, *i*, *alt*, E, R,	B, *i*, F, W, R	45
The School	3-18	10-50	acq, *cln*, CUR, EML, IMT, love, *loy*, PHY, play, PUG, *soc*	p, *ath*, *m*, *i*, *c*, L, art, S, alt, e	b, I, f, w	30

d. Founded by Frank Bergen Kelley, Ph.D., 19 W. 44 St., N. Y. Boys and girls. Some voluntary and some paid teachers. Talks on the city, discussions and business, with historic tours, prizes and emphasis on city pride and good government.

e. Designed by Wilson R. Gill, N. Y. City. The Junior Republic idea applied to the city and adaptable to public school clubs and lyceums.

f. A radical experiment, suggestive but dangerous, and destined to be of service in showing both what to do and not to do in reformatory and in club work.

I wish you would go over this table carefully, especially in the way of comparison. Note in the first column of figures which clubs are applicable to boys all the way along and which reach either only early or late boyhoood. In the next column see which clubs work on the group and which on the mass idea. In the column of "Instincts" note that of the 28 methods only 8 reach 10 of the 15 instincts named. See in how few are the athletic and play-instincts recognized at all. So in the next column see how few afford any athletic or physical training. You may disagree with the estimates in the last column, but it is graphic as showing how much a boy with all the instincts of a boy will be interested in the several plans. Some of the plans which show the largest per cents. are without the religious element. The home is counted as the educational institute that most interests the boy, its only imperfection at its best being that it does not afford the larger social fellowship. Nearly every plan has its one strong point, a few have several good ideals, some could easily be strengthened by imitation of others, and some would be worth while only as supplementary. This is true of all the civic and ethical methods, I think.

No one is "the best." The personality of the leader counts so much that many a plan that "works" in one place will not do in another, and such is the fickleness of the adolescent boy that no one plan is all inclusive. There is no patent way of saving boys.

The various methods which have been mentioned divide into two classes: those which have and those which have not the religious element. We have the methods used in churches and the methods used outside churches. Some will tell us that this division is also a caste line, and that the community clubs reach street boys while the church clubs reach only boys from good homes. I fear this is often true. The exact fact is that the community clubs in ignoring the religious element are able to reach Protestant, Romanist and Hebrew, which no single church can do. If one believes the community clubs are therein faulty he must also remember that they are more widely inclusive. The community clubs are by no means anti-religious, and are heartily willing to encourage their boys to supplement their

club-life with church influences. The two types must be recognized, and each may well be more tolerant of the other. In the community clubs we study every form of pedagogy except the religious. In the church clubs religious pedagogy is central, and the other forms are usually subsidiary. The former propose to make good men, impelled by every true motive except the religious, which they leave the church to give. The latter propose to make good men, impelled by every true motive including the religious. Probably the community club can make the more boys good and the church club can make the fewer boys better.

Among the non-religious or "community clubs" we find two theories which seem to be radically different. The "mass clubs" (or, as they used to be called from their originator, the "Collins clubs"), have one, and the "group clubs" (usually in connection with social settlements), have the other. I think Mr. William A. Clark, the Head of Lincoln House, has fairly characterized them.

"The boys' club of twenty years ago was a very simple affair. The membership in such a club varied from 800 to 2,500. Any boy in the city could be admitted to the club. The workers consisted of a doorkeeper, librarian and superintendent. During the club session the superintendent was obliged to walk about the rooms as a moral policeman. Occasionally visitors from the various churches came to assist by playing games with the boys. Later a few industrial classes, such as carpentry, clay modeling, wood carving, cobbling, typesetting, etc., were added. A penny savings bank was a leading feature of this sort of club, and occasional entertainments. Finally, with this plan, it is possible to have an exceedingly large membership. This in itself is a strong feature in the minds of many. Large figures look prosperous in a report.

"With the advent of the university settlement a new plan of club came into being. During the past five years the majority of boys' clubs throughout the country are now being formed on what may be termed the settlement club plan or on some modification of it. It differs from the old plan radically, in that it is always very much smaller. The whole drift of boys' club organization for the past ten years has been toward smaller clubs. The most characteristic plan of a Settlement Boys' Club in brief is this: A group of boys, eight or ten, usually of the same gang, all coming from the *immediate* neighborhood. This neighborhood idea is, as you know, one of the basal principles of the settlement. Such a group usually meets once or twice a week in charge of a leader. The programme for the little club varies with the taste of the leader and the boys. The leader, as a rule, is a person of refinement.

"The legitimate aim of the large club is to keep as many boys as possible off the street, giving them a cheerful room with games and books. The aim of the settlement is to take a small group, and through a refined tactful leader 'with a social soul,' as one man expresses it, moralize these boys by the power of friendship. The superintendent of a club of 1,500, assuming that he is equally as well educated and refined as the settlement type of man, can only be a friend to these boys in theory. Friendship means knowledge. No man can know 1,500 boys. Most workers find it hard enough to know ten boys well.

"And yet the *esprit de corps* of 100 boys, for instance, is different from the *esprit de corps* of a group of ten. Personally I believe that the group idea and the mass idea should be combined in the plan of the club. The old type of club has features of strength which should not be lost in the new plan."

Thus far the group clubs seem to have the advantage. They are further strong in that the boy's club is often one of an ascending group of clubs, embracing the whole family and giving a place into which the boy may graduate. In thoroughness, comprehensiveness and the power of personality the group club is a model social instrument.

The mass club, however, is open every night to every boy. To keep a boy off the street every night in the week is what the mass clubs actually do. "If we can only keep the boy where he can be found when he is wanted," says Thomas Chew, "we are doing a good deal." As far as they see their lack of individual workers who will divide the mass into groups as in the group clubs and as far as they succeed in getting such workers, they can emulate the college settlements. The fact is that no mass club director deals with boys in the mass because he likes to. And it is true that many a group club leader sighs for the splendid *esprit de corps* of the larger club, where the boys never feel that they are being patronized and really believe that they own the whole building. When the director lives with his family in the building and adds to the advantages of the winter a club farm, excursions and a vacation school in summer and is alert for new ideas, such a club with such a leader may be counted one of the great benevolences of a city. Clubs of both classes are a present day necessity. Says Frank S. Mason, who brought into being the Bunker Hill Boys' Club:

"The experience of the past twenty years of boys' club work has demonstrated that the boys' club is a necessity in the social structure, especially in large cities and crowded communities. It is a true and trite saying that a good home is a better place for a boy at night than a boys' club. If all homes were perfect homes, then would the boys' club be useless; if it were possible to reform many homes, it would not be necessary to form boys'

clubs; if it were possible for public school teachers to stand in the same relation to their classes as does the director to the members of his club, there would be no need of boys' clubs; could the churches be inspired to do this kind of work, and do it with the breadth with which it is done in the boys' club, the boys' club would have no existence. It is therefore in my mind, an important, but not the only means of reaching the boy, and it, as well as other possible means, should be pushed to the utmost in every city and town in the country."

Among all the methods without the definite religious aim that of George E. Johnson, Superintendent of Public Schools in Andover, Mass., is the most thoughtful, the most carefully based on the results of child study, and the most practically suggestive to those who would help boys. It was called the Play School. It is based upon the play-instinct, with all the other allied instincts of which play is the expression. Its purpose is to utilize these neglected instincts in education and much is made of will-training. Mr. Johnson describes the plan as follows in the *Pedagogical Seminary*.

"It is a school for boys ranging from ten to fourteen years of age. Its sessions have been evening sessions in the winter and day sessions during the summer vacation. The work of the school has been based entirely upon the play interests of the boys attending. The work has varied somewhat according to the season of the year, but the description will concern mainly the work of the summer sessions.

"The school was in session for six weeks during July and August, the school day was from half past eight to twelve, and forty boys were regularly in attendance. There were three periods in the school day the first and third being one hour and a half in length and the second one hour. A free choice of occupation was granted at the beginning of the term, very little occasion for change in the divisions occurring thereafter.

"Perhaps the favorite occupation, on the whole, was the wood-work. There was a complete sloyd outfit and a trained sloyd teacher. No attempt was made to hold the boys to a formulated course. The wood-work was to serve as sort of a supply shop for the apparatus used in the school. The boys made their own butterfly nets and fish nets for the nature work. They made the mounting boards used in mounting the specimens, the cases for the permanent collections, developing cages for the caterpillars, aquaria for the fishes, box traps for catching squirrels, etc. If a boy was interested in archery, he made his bow and arrows; if in cricket, a bat; if in kite flying, a kite; if in making a present for a younger brother or sister, a toy table perhaps. Mothers, too, reaped the benefits of the shop; for a boy often turned from his toy making to the making of a sleeve-board, ironing board, bread board, shelf, or something else for the house. Sometimes the boys united in making some giant affair of common interest; as, for example, a great windmill which supplied power for turning the grindstone, or a dam and sluiceway for the water-wheel, or a catamaran for the swimming pond.

"The nature work was hardly less popular than the toy-making. Nearly every morning there might have been seen a company of ten or a dozen boys starting out with the leader in search of butterflies or

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fishes, and for the incidental study of birds, or frogs, or snakes, or whatever came to their notice while hunting. The older boys devoted themselves mainly to the butterflies, the younger to the fishes. Nearly every species of butterfly to be found in Andover during the season was captured, many kinds of caterpillars taken and developed into chrysalides in the cages, and nearly all the different kinds of fishes to be found in the streams and ponds of Andover were caught and studied. The work consisted largely of outdoor tramps, but there was also laboratory work, the description and drawing of the worm, chrysalis, and butterfly. Honey bees in an observation hive, and ants in nests made of school slates covered with glass were watched. Some of the ants' nests were successfully kept and watched for months, one boy keeping a colony all winter. The microscope was frequently used in the laboratory work. Note books on fishes were also kept. The interest of the boys was deepest in the gathering and general observation and naming of specimens, the watching and feeding of the fishes, and less in the minuter observation, drawing and naming of parts. The zeal in the hunting of specimens was often intense.

"Allied to the nature work, was the gardening. A part of the school yard was plowed and a definite portion allotted to each boy who chose gardening. Vegetables of various kinds were planted. Last year flower plants were also a part of the care and possession of the boys, and were taken home and transplanted by the boys at the close of the school. The following spring, many of these boys were reported to me as having started gardens of their own at home.

"In the winter session stamp and picture collections were substituted for the nature collections, the stamp-collecting craze spreading like wild fire among the school children last winter, some of the candy and cigarette counters suffering thereby to my certain knowledge.

"The second period of the day, one hour in length, was spent in outdoor play. In one section of the playground might have been seen a group of boys engaged in a match at archery. In another section, the older boys, perhaps, divided into opposing sides by some natural grouping which lent zest to emulation, were hard at a spirited game of ball. Elsewhere some of the younger or less athletic boys were playing at tenpins on the smooth drive-way, or at bean bags. There were also at times, foot-ball, basket-ball, ring-toss, tag games, boxing, wrestling, racing, jumping, vaulting, gymnastic tricks, kite-flying, boat racing at Rabbitt's Pond, swimming races at Pomp's or in the Shawsheen. Three times a week there was a division in swimming. The swimming lessons often served as a good opportunity for collecting specimens or plants for the aquaria. On rainy days there were indoor games, which partook more of the nature of social or parlor games and which were intellectual rather than physical.

"The musically inclined boys were always eager for an orchestra. This took the form of the kindersymphonie. The talents and attainments of the boys made the music necessarily crude, but it was much enjoyed by them. The violinists were children who came for the orchestra alone, the play school boys being confined mainly to time-beating instruments. There was a class also in piano playing which met twice a week.

"The printing department appealed to some as real play. The press served in printing the names of the boys in the several departments, the base ball teams, headings for school exercise papers, cards, some bill heads, and, best of all, a four-paged paper issued at the close of the last school, containing compositions by the boys on the work of the various departments, names of prize-takers, cuts of draw-

ings made in the nature work, list of specimens captured, and the like.

"Besides the drawing in the nature work, there was a division in drawing for those who preferred it to any other occupation they might have during that period. The work took the form, mainly, of large free drawings from objects. This was the nearest allied to regular school work of any department, unless we except the library from which the boys eagerly drew books of stories, history or nature, for home reading."

I shall speak further of the Play School in the next chapter. I shall show that Mr. Johnson has provided a plan for carrying these boys on in further harmony with their development until maturity. Mr. Clark's Lincoln House clubs are an unconscious reaching out in this direction, the work of a single group, perhaps, being less varied and more thorough in a single direction.

In coming to the methods in which the religious element is present, we find that the Boys' Branch of the Young Men's Christian Association offers instructive likenesses to and contrast with the group and the mass clubs. The boys' department was an afterthought. I think it needs no prophet to declare that it is soon to become the important thing in Association work. The Association reaches the upper and middle classes of society. Its fees are prohibitory to poor boys. Although the men usually crowd the boys out of the building, the Associations generally have an almost model equipment for boys. The gymnasium in winter and the camp in summer reach and satisfy the instinct for physical activity. The game-room is often adequate, although organized play is hardly known. The department of manual training is not often open to boys. The Associations lack sufficient leaders for boys, but they are awaking to their need. The Association has the advantage of being able by its equipment to do what no single church can do, but it is less influential than the church in that the boy does not love it as he can the church. He usually feels that his fee squares his obligations and that the institution is one simply to get something out of. I would rather my boy would be converted in the church than in the Association. I would trust more the approach, the subsequent care and the product. At present the average Boys' Branch is not conducted so as to be as popular with boys as the mass club or so as to be as worthy of commendation for careful, thoughtful work as the group clubs.

The most popular way of helping boys in the church is by means of the Junior Endeavor Society and kindred organizations. We are to remember that we are not discussing the adult Endeavor movement, although, whatever its virtues, it strikes the psychologist with some surprise to note that its

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every feature has been transferred to its junior branch. Can it be possible is his instant query, that a plan of the utmost utility with persons from sixteen to forty can be completely adaptable to children (in the "junior" branch) from six to twelve and (in the "intermediate" branch) from twelve to sixteen?

This seems to be the chief trouble with the plan. It is a plan for grown up people. It is a society for sitting still, and boys do not like to sit still. Its meetings are based on the class meeting idea, and boys were never made to go to class meetings. Its membership is at least half girls, and, as we have seen, boys never spontaneously form such societies before they are fifteen or sixteen. It usually has women leaders, and this makes the maturing boy uneasy. It generally has in it children of all ages, and the clan-bounds of boys are very strict about equality of age.

The psychologist finds other weaknesses which the boy would not be able to define. He finds fault because the leader is not only generally a woman, but a young, inexperienced and untrained woman. The effort is made to get the best leaders, but the United Society officers have repeatedly said, that if a trained leader cannot be secured, a zealous young person or a committee of young people should go ahead with the society. The soul of an adolescent child is too fair and fine a thing to be handled by a willing but ignorant girl or bandied about by a committee. If the pastor, if the deacons or deaconesses, if the wise fathers and mothers do not see here the most important work of the church, then let the spiritual nurture of the children come in some other way.

The psychologist finds fault with the plan because it is not adapted to boys. It often meets Sundays and so reaches only the boy that wears the Sunday suit. It is an altogether different boy who goes out into life Monday. It ignores almost entirely the instincts for physical activity, out-of-doors, natural science, constructiveness, play. It calls for a self-expression which is premature and unnatural in those days of crisis when it is more important to brood than to utter. It offers a pledge which an honest boy hesitates to sign because of its breadth and life-long implication, the infraction of part of which is treated as a matter of course in the society. "Nothing tends more to give to children a sense of unreality," says Sir Joshua Fitch, "than the habit of exacting from them professions of faith, which do not honestly correspond to their present stage of religious experience." The organization is smitten with the plague of uniformity, which possesses the Sunday School. No matter what the local membership or circumstances, every band is urged to take the uniform topics and to adopt the same affiliated ideas. These topics deal much with rest, peace,

resignation and introspection, essentially feminine themes, when, as Gulick has pointed out, the whole trend of a boy's nature is heroic, objective, katabolic. The idea of the movement is the congregation-idea : the crowded convention and excursion, international topics and methods, and in the local society, children gathered, exhorted, prayed with, dealt with—wholesale. There is no indication that the wealth of recent child-study literature which is transforming education and home life has yet gotten inside the door of the Junior Endeavor movement.

On the other hand such religious bands as these are splendid untrammelled opportunities for children to serve God and perform religious duty. They give instant definiteness to consecration. The word "Endeavor" was an inspiration. It expresses the ideals of youth. To try, to persist, to attain, these are the things a boy wants to do. The junior idea has in it the three things which I shall say later are fundamental to work that shall help boys: something to love, something to know, and something to do. The Endeavor hosts, "the army of the daybreak," have the enthusiasm, the confidence, the consecration and the opportunity to take hold of the boys, and do for them what no one else can do. Let the directors of the movement gradually retire methods that are merely imitative of adults and that insist on iron conformities and affiliate with themselves some of the other forms of work named in this chapter, and then the movement will furnish the leadership and the goal to a multitude of boys who need only the right touch to ripen them into Christian manhood.

Now to the Brotherhoods of St. Andrew, and of Andrew and Philip. The strength of these brotherhoods is *loyalty*. This gregarious spirit of boys has in it a great capacity for affection, as is seen in the strength of college secret societies among youths not out of the adolescent period. That spirit is beautiful and ennobling. The church is an institution as worthy of passionate devotion and of "team-work" as the college. The Brotherhoods seize this romantic affection and fasten it. There is a disadvantage in that, in either case, the Boys' Brotherhood was an after thought, and too often the work is modelled after that for men, instead of appealing directly to boys. There is sometimes, too, but not always, the impression given that the play-element is for the sake of winning those who are not Christians, instead of being the legitimate employment of the Christian boys themselves. I value the Brotherhoods very highly as opportunities afforded boys to develop their early Christian characters in each other's fellowship under mature, manly leaders.

The Knights of King Arthur, devised by the author, is an

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order of Christian knighthood for boys, based on the study and emulation of heroes and standing for the manly virtues of courage, chivalry, loyalty and service. Its special attractions are ritual, initiations, "quests," rolls for heroic deeds and hero scrap-books, the fraternity spirit and a system of recognitions known as "the peerage." It appeals to the romantic, hero-loving and imaginative side of a boy's nature as no other plan does, and so fills its own place. It gives some room to the constructive instinct in the making of the regalia by the boys, and to the play instinct in the exercises themselves. It is not secret. Its success depends almost entirely upon the leader. A man of imaginative, pains-taking spirit can make this plan a means of character building and religious nurture of singular power among boys. Those who use nothing but the material furnished by the originator or who do not push the special features of the plan patiently will not make much of it. The disadvantages of the plan in actual practice seem to be that it requires considerable work on the part of the leader, and that when the novelty of the idea wears off few leaders know how to turn to something new. Loyalty to a society or a plan should never outweigh loyalty to the boy.

The most interesting church work that I know of anywhere among boys is that exhibited in an organization known as the Captains of Ten, originated and conducted by Miss A. B. Mackintire of Dr. Alex. McKenzie's church in Cambridge. We have here a successful boys' club conducted by a woman. We have here a woman who, without fad or theory, has worked out for eleven years a plan which unconsciously fits the best theories. The basis is hand-work. The Captains of Ten are boys from 8 to 14, who are captains of their ten fingers. Sloyd, weaving, whittling, cardboard work and other activities are tried. The interest is missions which are taught graphically. The dramatic instinct is fully recognized in this and in the entertainments by the boys. Here we have loyalty, will-training, altruism, hero-worship, the imaginative instincts, all cultivated in manifold ways. The boys are graduated into the Knights of King Arthur, under adult leadership and with such original special features added as seem necessary. A personality that has been devoted to boys with such patience and thoughtfulness becomes a masterful influence on character. These boys seem to ripen into Christian life naturally. There is no Junior Endeavor society in this church. This illustration suggests the power of broader methods wielded by sense and consecration to assist in the actual religious decisions of boyhood.

We come now to the greatest educational institute in the church—the Sunday School. The Sunday School is the target of much wise and unwise criticism, but it presents the greatest

hope and the largest opportunity of any institute of social pedagogy in the world. Its teachers are criticised for their lack of pedagogical training, but they are the noble and willing souls in the church, and they are trying everywhere to learn all that the pedagogists have to teach. The system of instruction is declared to be totally at fault, and it is rather appalling to think that a course of lessons which is being studied by 12,000,000 people is prepared by a committee, not one of whom is a specialist in the knowledge of child study. This is going to be changed. The better system is coming, but it has not arrived. A tentative outline of it is here offered. As applied to boys we may state it as follows: Its basal principle is that "interest is the only criterion of success and the only soil in which teaching takes root." "The child must rise through," says Ellis, "not fly over and above the race's religious growth." The interests of boys under nine are simple, near, concrete. Their religious conceptions are anthropomorphic, animistic, even fetishistic. Teaching should be topical: very simple and definite subjects being chosen. The childhood of Jesus and of other Bible characters, and the care of God as illustrated in nature and the animal world will be indicated as the subjects of teaching. The object of teaching is to lead to childlike trust in the Heavenly Father. In the stage of boyhood the mythologic, the heroic, the sensuous or dramatic, and the egoistic instincts appear. It is the age of law. The Old Testament is the textbook, with sidelights from legend, mythology, fiction and heroic and missionary biography. Teaching should be biographical. The method, as in the previous age, should be that of the story-teller. The object of teaching is to inculcate right principles and build up right habits. As the age of ferment approaches confidence changes to doubt, egoism broadens to altruism, and the time for a definite religious as well as physical regeneration comes on. Teaching should be inspirational. We are surprised to learn that the story of Jesus is an adolescent interest. Dr. Hall suggests that as he became a man so as to be a ladder to teach us to know him as God, so the teaching about him should be first of the human and then of the divine element. In adolescence teach the altruism of Christ. It is the age of love. The personal Christ must be held up as the object of passionate devotion and heroic service worthy of the yielding and consecration of the will and the entire moral nature. The story-telling method now yields to that of free, frank conversation.

The course of lessons in the Sunday School of the future will (1) recognize the mental and moral development of the child, by what the Rev. Chas. E. McKinley well calls "a graded gospel." "Grade the gospel, not the child." (2) In the use of the Bible with children it will magnify the personal element,

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will teach the Old Testament first, and will teach the humanity of Christ before his divinity. The purpose to inform the child will yield, as Dr. Street urges, to an effort "to aid it to pass from stage to stage without atrophying in any one. Growth, and not learning, is what is desired." "What a child has felt he never forgets," said Alice Wellington Rollins. "What he has merely been told he may forget in five minutes." (3) "Love is the keynote of all our work." "The heart is the universal faculty. We live in the heart." The adolescent period must be focussed upon nothing less worthy than the endeavor to center the love of the child on Christ as Hero, Saviour and King.

The Sunday School should itself undertake the church's boys' club work. I plead for this broadening of its function. It has the best opportunity to do this. Here is a school with 200 boys. Organize a separate boys' club and you may get 30. Ask the boys of the school to hold a weekday session and you can get nearly all. It has the leaders. The mature people who teach classes are the ones to do this work. If, instead of having one earnest individual it were understood that the Saturday session is as much the teacher's work as that of Sunday, the task would not be hard for any one. The school needs the work. Its only weakness is that it is isolated from life. The school has the confidence of the church. An authorized weekday institute for boys and for girls would have prestige and influence. If it would hold such a weekday session it would make the turbulent Junior Society and the struggling boys' clubs unnecessary. The school has the equipment of place, heat, lights, money and apparatus. By thus co-ordinating all the educational work we would be free from this curse of over-organization of which we complain.

A new fad for supplying the deficiencies of the Sunday School is the revival of Catechism Classes. They are supposed to furnish candles of truth ready moulded for future burning. Sir Joshua Fitch says of them: "I attach small value to catechisms. We never employ them in teaching any other subject than religion. And the reasons are obvious. They are stereotyped questions and stereotyped answers. They leave no room for the play of intelligence upon and around the subject. They stand between the giver and receiver of knowledge, and do not help either of them much. . . I appeal to your own experience. Do you find that the fragmentary answers which you learned in the catechism help you much in your religious life? When I look back on the work of my religious instructors, do I find that I learned most from their formal lessons, or from the influence of their character and sympathy?" Dr. Hall found that only one child out of

12,000 and that the precocious son of a minister, cared much for doctrine. He gives no room whatever to the method, which "has been obsolete in education for four centuries." A recent conference of ministers on catechetical instruction seemed to draw toward the conclusion that it is the *class* rather than the catechism that is important. The catechism is a barrier to personal intercourse and to intellectual growth. But the intimate fellowship of the wise pastor with adolescents, for the purpose of what Mr. C. E. McKinley calls "educational evangelism," is most excellent. The Rev. Thos. Chalmers, of Manchester, N. H., has exemplified the co-ordinating method which I have recommended by reviving the old Scotch church idea that the pastor *expects* to have the attendance of the children of his people at a certain age for instruction just as much as the secular school teacher does.

The church has other means of helping boys which are not everywhere recognized. The church service itself, the boy chior, the liturgy where it is used, the sacraments, are used in the Roman and Episcopal churches as an appeal to the imaginative and dramatic instincts with wonderful power. They may rightly be so used in other communions. Preaching to children, especially to adolescents, is the most beautiful art and the most rewarding task of the Christian minister. The spectacle of a church full of adults, who have passed the era of crisis and most of whom have been converted, engaging the efforts of a preacher is one of the most unsatisfying sights on earth. It is a mistake to think one has to "preach down to" adolescents. The most virile, noble and splendid truth is the best food for them. The emphasis upon Sunday School attendance as a substitute for children is most unfortunate, since so many children leave the Sunday School at the age of greatest danger, and, having never learned the habit of church attendance, pass from all church influence. The Bible Normal College of Springfield, in its interesting experiment of the care of a mission church in that city, has literally put "the child in the midst" by making the Sunday morning service one for children. My own experience is that if we give the children something to come for, and encourage their presence by simple rewards and attentions, we can secure and sustain the habit. In my own church, last year, 49 received such rewards, of whom 22 were boys.

The revival appeals especially to adolescence. It satisfies the emotional nature. It is a simple appeal to the heart. Take away the late hours, the long services, the untrained and fanatic exhorters—features which are incidental—and reduce it to a "children's crusade," in which the social and emotional element is retained, where the ideal of the heroic and loving

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Christ and his grand and strenuous service are held up by the pastor or a wise specialist with children, and we have an instrument of historic dignity and perpetual value. The danger is the forcing of the nature before it has come to its day of choice and the neglect to follow up the decision by the careful training of the pastor's class. A plan working in this direction which has found favor in the Sunday School is that of a Decision Day, to which, from my own experience, I can give a guarded approval. The decision asked for should always be simple, definite, and never with the clause "for my whole life long." When made it must not be thought to mean too much and a premature expression urged. Never count or announce the number of decisions. Neither must it be allowed to mean too little and be altogether neglected. It should not only be asked but reiterated annually and the results from year to year tabulated, studied and followed up individually.

I will put my idea of the church's educational scheme into form in the next chapter, which is a summary of conclusions drawn from what has preceded.

IV.

Suggestions as to How to Help Boys.

Learning that there is a period when the boy seeks and needs a larger and a better social fellowship, we have discussed the ways in which boys have sought this and the ways by which adults have sought to furnish it. We may now in a sort of summary endeavor to answer this general question, "How shall we best help our boys through the period between ten and eighteen years of age?"

First, what means have we?

The greatest means of helping the boy is the Home. I have not emphasized this, because we have been talking of other things. But the one thing that discourages the social worker for boys is the recognition that the divinely appointed institution, which has the most of the boy's time, interest and loyalty and every needed inspiration and appliance for his nurture, is untrue to its duty, and that nothing else can possibly take its place. Not only are children God's ambassadors to earth's homes, but it is the personality of the mother that originates in the child the earliest and the most permanent ideas of God. When a boy arrives at adolescence he turns from his mother to his father. The boyhood of the father is the hero of the son, and it is almost impossible, as it seems ungracious, to provide substitutes for the ethical teaching and practice of the home. The influences that disrupt the home and prevent its members from ever being together are most dangerous, not in their influence

upon the parents, but upon the child. It is the evening lamp that is home's lighthouse. A home without a good eventime is a home without hope, and the way a boy's day ends at home is a prophecy of the way his life will end. The hour after sunset is the Sabbath of the day. It seems, too, as if the very years of crisis were those most neglected. A creeping baby is submerged in toys, but a growing boy of ten has nothing at home to play with. A child needs caressing much more at twelve years than at twelve months. Many parents to-day are like cuckoos, willing to leave their young in anybody's else nest, and trusting their religious nurture to those who may be willing to take up the task of saving other people's children.

Many boys could be carried through the age of unrest without resort to outside agencies. When the "gang" spirit appears the parent can co-operate with it, rather than obstruct it. Jacob Riis tells how his wife met such a case of apparently dangerous conniving:

"My wife discovered the conspiracy, and, with woman's wit, defeated it by joining the gang. She "gave in wood" to the election bonfires, and pulled the safety valve upon all the other plots by entering into the true spirit of them,—which was adventure rather than mischief,—and so keeping them within safe lines. She was elected an honorary member, and became the counsellor of the gang in all their little scrapes. I can yet see her dear brow wrinkled in the study of some knotty gang problem, which we discussed when the boys had been long asleep. They did not dream of it, and the village never knew what small tragedies it escaped, nor who it was that so skillfully averted them."

The happiest memory of my own boyhood was—in a place where the neighborhood spirit was yet warm—of the weekly evening gatherings in the various homes in turn, with the elders conversing at one end of the room and we youngsters playing games and acting plays and charades at the other. I do not remember that any of us ever cared to be anywhere else at night. The story of the Alcott family is another entrancing illustration of what I mean. The curfew ordinance has at least the advantage of making it necessary for the parent to keep the child in the home evenings.

Next to the evenings, Sundays are the times of the greatest opportunity in the home. I know how hard it is to abbreviate the afternoon nap for the sake of the boy, but it will be better to do so now than to be awake with anxiety later. The Junior Endeavor movement has kindly taken the burden of Sunday afternoon from many a parent, and has thereby done a wrong to nature, to the home, to the Sabbath and to both parent and child. The dumping of children into Sunday Schools that their

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parents may go off Sundays is heathenish and abominable. It is also a question how far any outsider has the right to encourage religious feeling in a child without the knowledge of its parents.

If the period of habit-making has been passed wisely in the home the period of will-training will present fewer difficulties. City households that are able to emigrate bodily to the country solve half the difficulties of restless childhood and store up material for winter nourishment and exercise. The country week and the vacation school and the summer camp do the same thing in a lesser degree.

Next to the home we must place instrumentalities that are home-like. Celia Thaxter told of

> "The gracious hollow that God made
> In every human shoulder, where he meant
> Some tired heart for comfort should be laid."

God destined some people to be parents. Others he left for god-parents. That old chrismal idea needs to be revived. Many an empty heart could be filled with lad's-love. There are great houses which are silent that could be filled with wondering children; and unsatisfied, cultured lives that could be poured out in no finer crusade than to give a few boys a place once or twice a week that has the home-touch. Some Sunday School teachers have thus brought the school into that contact with life whose lack we mourned in our last chapter. Many a college graduate—like the boys' athletic hero, Evert Jansen Wendell, or some girl from Smith or Vassar—has done the same. Among the well planned ways of helping children and helping their homes at the same time I think the best is the Home Library System originated by Chas. W. Birtwell. It has no big convention or newspaper organ to commend its workers and no fashionable or ingenious features to make it a fad, but it is the most splendidly sensible thing of which I know. A bookshelf of books is loaned in a poor home and a volunteer visitor comes in and gathers a group of eight or ten children to read and talk them over together. Games and pictures are circulated in the same way and the pass-books of the Stamp Savings Society are distributed and collected. Anybody could do this, even where such a work is not organized as it is in Boston.

Next we come to the Public School. I cannot discuss this. The most enthusiastic profession on earth is that of the teacher. The greatest advances in scientific application of knowledge are being constantly and willingly made in the school curriculum and methods. Two recent changes in the school only can I mention. First, the instruction in manual training and

artisanship which was once given in every New England home to both boys and girls has now devolved upon the school. The idea of work individually planned and spontaneously carried to completion, which I have defined as the method by which the will is trained, has not yet come in with this change. Instead, the immense amount of seat-work and home-work tends in exactly the opposite direction. Second, with the passing of the reading of the Bible from the schools, moral education, with the exception of instruction in temperance, has almost ceased to exist. Some startling statements have been made by Miss Margaret Evans and others as to the total lack of ethical knowledge and discrimination manifested in groups of children going out into life from the public school. Social pedagogy must supply this need of will-training and ethical training, until the schools are forced to take it up.

The last means of helping boys through adolescence is that which we have discussed in previous chapters; organization in social and religious institutions; in short, boys' clubs.

By what methods has our study pursuaded us that we may best use these societies for the making of manhood?

I have spoken of the value of Mr. George E. Johnson's studies and experiments with play and games. You will be interested in the outline of his Play-School curriculum which he has furnished me.

"*General Outline of Work. Andover Play-School and Boys' Club.*

"Group I. Boys ten to fourteen years old.

"Play-School, winter session: Wood-work, gymnasium, games, collections, music, printing, library, savings bank.

"Spring: Garden class started, nature work incidentally. Outdoor games 'patroned' Saturdays.

"Summer: Vacation Play-School.

"Group II. Boys fourteen to eighteen years old.

"Winter: Sloyd, mechanical drawing, gymnasium, athletic club, games with coaching, checkers, chess, whist, billiards, music, banjo club, collections, printing, paper issued, savings bank, instruction in various branches, library (reading watched, hints given, use of library).

"Spring, summer, and fall: Outdoor gymnasium, patronage of athletic teams, game-master for the Richards Field.

"Group III. Age eighteen to twenty-two.

"Winter: School of politics, gymnasium, athletic club, games with tournament and coaching, music, dramatics, printing, etc., continued, instructions in various branches, library continued, savings bank (Andover Bank).

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"Spring, summer and fall: Outdoor gymnasium, patronage of athletic teams, game-master, etc.

"Miscellaneous: Church committees to keep track of various ages. Lectures for information, morals, citizenship, health, purity. Socials."

In the Lincoln House Play Work Guild the course in creative work in arts and crafts after leaving the kindergarten age is as follows:

"Age 6 to 8: Advanced kindergarten course (Course II) in clay.

"Age 8 to 10: Course III clay, perhaps varied with paper sloyd.

"Age 10 to 11: Simple fret work, varied with Course II in paper sloyd, or Course IV in clay.

"Age 11 to 12: Fret work, Course II, varied with Course I in cardboard sloyd.

"Age 12 to 13: Wood sloyd, Course II in cardboard, free-hand drawing, advanced course in clay.

"Age 13 to 14: Simple cabinet making, wood carving, Venetian iron work, basket making, printing, lettering, drawing, water color work.

"Age 14 to 17: Cabinet making, leather work, lettering, printing, weaving, metal work, water color work, drawing."

These boys have also the gymnasium and the small group boys' clubs (8 or 10 boys) in which, as they may choose, they take up collections, scrap-book making, travel, study, simple fancy work, animal study, and an endless variety of things which teacher and boys can pursue together.

Of the methods which may be used we may speak of a few more definitely.

Games and Play. Mr. Johnson urges that "for school children should be chosen, as far as possible, the games which are based on instinctive tendencies. On the hunting instinct may be based games of chase, games of searching or hunting, games of hurling or throwing; on the fighting instinct, games of contest, as wrestling, boxing, trials of strength; on emulation, as jumping, racing, trials of skill; on curiosity, parlor magic, riddles; on sociability, the social games; on acquisitiveness, collections; on constructiveness, wood-work, sewing, making toys, doll-dresses; on the caring instinct, dolls, pets."

The purpose of choosing games should be, he says:

"1. To stimulate a healthy play interest and educate it.

"2. To play games adapted to exercise certain faculties of the mind and body.

"3. To teach games which may be played at home."

I will only remark further that while it is a matter of experience that games teaching observation, memory, attention,

and furnishing physical activity are quite numerous, indoor social games which can engage a large social group are very few. He would be a benefactor to childhood who would present even one good one. This is especially true of games enjoyable by older boys and girls.

Gymnasiums. The gymnasium is instantly attractive to a boy. He sees in the ropes and bars and chest weights the vision of himself as an athlete and a victor. I do not think the gymnasium as mere physical exercise appeals to a boy. It gives him nothing to anticipate or to remember. I think it is to the combative and emulative nature that it appeals. For these reasons the gymnasium should be controlled by the play interest. And as it is this interest that dominates, those boy-leaders who have no gymnasium can get along without it if the play-interest in physical activity can find some other room for exercise.

Handiwork. This is the reason why hand-training is commended. It gives the boy more than the gymnasium and it appeals to more instincts. The trained hand opens the door of shop and laboratory. It not only is the chief means of will-training but it leads to the discovery of adaptabilities of life, it opens the way to specific usefulness, it solves the question of the life tendencies, it develops the expressing man, and the interest it excites leaves no room for crime, self indulgence or mischief.

Wood-work would naturally suggest itself as the easiest and least expensive form of handiwork, as well as the most varied in result. Elaborate equipment of salaried teachers are not indispensable. With a good old carpenter and the boys' own jack knives I kept thirty of them happy last winter. It is very easy to let the hobby of utilitarianism and the desire to make pretty things to photograph for the annual report run away with the handiwork method. The purpose should be, I take it, not to make artisans but manhood, not hand-agility but will-power. For this purpose I know nothing better than to give a boy an old shoe case and tell him to make a toy house out of it for a treasure chest. Here he has opportunity for invention and patience and result enough for the thing you are trying to do. Of course what is done should be worth doing and be well done. This faculty for mechanical and individual activity has been almost lost to-day in the differentiation of labor.

Collections. Dr. G. Stanley Hall found some years ago that of 229 Boston school boys only 19 had no collections. A recent study of children's collecting shows that the fever begins at about 6, rages from 8 to 11, is at its height at 10, and, among

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boys, lessens after 14. Of things collected the following general classes exist :

cigar pictures, and stamps, 34%
objects from nature, 32%
playthings, 11%
miscellaneous, mostly trivial, 8%
pictures, 6%
historical, 3%
literary, 2%

The rage for stamps is from 9 to 11 and for cigar and cigarette pictures from 11 to 12. Among the prominent single objects gathered, beside those already mentioned, are : marbles, advertising cards, books, rocks, shells, war relics, buttons, badges.

While local opportunities vary, these facts would furnish suggestion as to the directions of probable interest. It will add much to the value of the process if the apparatus used, such as aquaria, cages, flower-presses, scrap-books, be made by the boys themselves.

Saving. In this connection it seems necessary only to commend highly the plan of the Stamp Savings Society and the pass-book system of the boys' clubs.

Music. Believing in the power of music to soothe the savage breast, several clubs have organized choruses. Churches organize boy-choirs as much to help the boys as to help the church music. Some clubs print the better popular ballads of the day, mingled with patriotic songs, on sheets for singing in unison. Contrast the sunset hour in a college town with hundreds of boys singing on the campus with the same unmusical or uproarious hour in a large village or small city, and you see something of what music will do.

Nature Study. I have already spoken sufficiently of collections of gardens, of vacation schools, of summer camps and of winter groups for nature study. I commend the Agassiz Association.

Drama. This instinct is much neglected. It is as legitimate as any, and craves expression. Mr. William A. Clark speaks of "the boys' mind, cursed with melodrama." He is referring to the street boy and his interest in sensational news, prize fights and the plays of the South End play-house. Some substitute for these evils must exist. The charade, the dialogue, the missionary and Sunday School concert, and the desire of boys and girls to "get up an entertainment," are manifestations of the same instinct in our church life. I am watching for light on this matter with much interest. In this age, when open church opposition to the theater is becoming silent, our children will be kept from the real temptations of the modern theater by giving

them their own opportunities for expressing this instinct for personifying character and action. The novel-reading craze is a kindred one, and may be similarly met. A sedate Congregational women's home missionary paper contained recently a most stirring little play of western missionary adventure to be performed by boys, which was called "a missionary concert exercise." I don't care what you call it. It was a good thing.

The Knights of King Arthur helps the dramatic instinct without including the theatrical element.

Socials. I have advocated the organizing of boys and girls separately. In organizations for sitting still and talking in meeting I insist on this, for those two things are specialties of little girls. But in societies of the more active sort it does not make so much difference, for the boys and girls before they are thirteen will not pay any attention to each other. It is desirable, when children are maturing, that they should be brought together under adult auspices for mutual acquaintance and development. The things that do take place at church socials and unchaperoned children's parties, if written out would make a chapter of horrors. Is there such a thing as a sensible church social for boys and girls? It is an actual fact that some parents think a dancing school is a better place for their children than the church vestry. No doubt it does pay some attention to manners. In the age of physical exuberance these socials need special attention. They should be small. The children should come in sections, if there are too many to come at once. There should be one head, who should have a definite plan for the entertainment to be provided, and a sufficient body of adult assistants. The pleasure should be spontaneous and much of it provided by the children themselves, but it should be refining, of continuous interest, inclusive of all, and governed in its length by the bed times of the children. It should also be remembered that when well meaning people ask children to come from their homes in the evening, whether to play or to pray, they are responsible that those children shall arrive home early and in good company. Personally, I am through with affairs that send young girls forth on city streets at nine o'clock with accidental or self-chosen chaperonage.

Stories. Not only is the story the chief way of teaching in both the secular and the Sunday School until the child is well along in adolescence, but it is a method of universal interest. It was the primitive form of history and the first means of perpetuating crude scientific discovery and religious tradition. It is the material of the Old Testament and the charm of the New. It is a perpetual interpretation of life. Fairy stories not only appeal to but are the actual translation of child-life,

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which is fairy-life, in its wonder, credulity, and ignorance of boundaries and limitations. Clara Vostrovsky gives a chart of the elements of boys' interest in stories, which I reduce to per cents., as follows: action, 36; name, 24; appearance, 10; possession, 7; speech, 5; place, 5; time, 3; feeling, 2; dress, 2; esthetic details. 1½; sentiment, 1; moral qualities, 1; miscellaneous, 2½.

The girls' interests were quite different, being especially strong by comparison in speech, appearance, dress and moral qualities. I have found the story excellent for the children's sermon. It is soothing in any discord that may arise in the children's society. It comes in well during the social. Nothing is better on Christmas Eve or Watchnight or in the solemn days of Holy Week for moral impression. The moral, by the way, is better not at the end of the story, but in sly touches in the middle and as produced by the narrative itself. He who can look into a circle of shining children's eyes and tell a good tale knows one of earth's finest luxuries. Oh, for more shamans, minnesingers, troubadours, bards, jongleurs or Pied Pipers!

Pictures. I need not speak of the many uses of the Perry Pictures, The Elson Prints, etc., in creating an interest in art, history, collecting, etc. I have found these pictures of Holman Hunt's especially helpful in the religious instruction of adolescents. There is something in their opulence of detail and mystic beauty which makes them singularly effective. They may be used for impressing the solemn lesson of the importance of adolescence as the time of choice and opportunity. First, I use "The Child in the Temple." I point out the many details: the inscription on the door, the doves, the rejected stone in the court, the blind beggar, the lamp lighter, the babe brought to circumcision. Then the characters appear: the doctors with their scrolls and phylacteries—one is blind—Mary with her look of amazement and love, Joseph with his protecting hand, and the boys in the picture—the musicians, the slave and the Boy Jesus. It is his hour of awakening to life's meaning, God's will and his hour of choice. I use the "Light of the World" to lead to the thought of the life-door at which the Christ knocks, *which can be opened only from within.* And "The Shadow of the Cross" suggests the manliness of the young Christ and his choice of the cross rather than the jewels over which his mother lingers.

Questions. The true leader will be often Socratic. He will not furnish categorical, catechetical answers, but, finding that the *one thing* humanity and especially child-humanity is unwilling to do is *to think*, he will constantly in private and in

public suggest haunting and leading questions of ideal, casuistry, and practical ethics which must and will be answered.

There are many other methods which I could mention. Some of them were suggested in the analyses in Chapter III. The seeking and training of good taste will not be forgotten, the illustrating and emphasizing of cleanliness, chastity, temperance and reverence by personal conversation rather than morbid "purity talks" or class exercises will have its place, talks by men whom the boys admire, and the introduction of rewards and special privileges will have a stimulating effect, if they are made accessible to a fair grade of effort rather than exclusive to a first and second. The last method which I name is the most important.

Personality. The three curses of humanitarian work are utilitarianism, uniformity, and numbers. And the greatest of these is numbers. It takes perpetual vigilance to do church or social work without becoming a slave to the addition table. All work for men that amounts to anything is in the end the influence of personality on personality. So in boys' work we have two things of importance to consider: The personality of the leader and that of the boy. Mr. Mason suggests as the easier qualifications for such a leader that "he must necessarily have the magnetism of Moses, the patience of Job and the wisdom of Solomon." It would be unfortunate to place the standard so high that everybody would shrink from the work. The boy is influenced by his leader in two ways: through his imitativeness and through his affections. He idealizes his leader and tries to become like him. "Teaching is really a matter of contagion rather than of instruction." His leader must therefore be a person of character and self control. He loves his leader and wants to do for him. His leader must be a person of ideals who can offer him good and true things to do.

The personality of the boy must never be forgotton. We must forget our addition table and stop seeing our boys as flocks. The most important thing any one can do for a boy is to love him. We must know each one in his school, his home, his playing and gathering places, as well as at the club or our own home. There are so many different kinds of boy under one hat and boys differ so much in their individual interests and the interests of one boy changes so fast that it takes a watchful and encyclopedic mind to catalogue them.

The way to help boys by the methods we have mentioned, as Lancaster said, is to "inspire enthusiastic activity." "Oh!" says one, "you give the boys something easy all the time." The things that inspire enthusiastic activity in a boy are not easy things. Is baseball easy? Is football easy? Is swim-

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ming a mile easy? Are wood-work or parallel bars or punching bags easy? Interest is not ease but it makes things easy. In that marvellous study in the New Testament of Jesus and the Rich Young Man, we have a study of Jesus and adolescence, and the appeal that the Master made which aroused that slothful idler almost out of a lifetime of languor, was an appeal to the difficult, with this inspiration, his own passionately declared love for him.

We should use as many methods as we can thoroughly, letting each get its effect, and co-ordinating also, so as to feed the boy with as many interests as possible. We cannot tell which one may determine his life-work or mould his character. It is inspiring to know that in the self-originating exercises of the boys' club one may do what the school does not accomplish—help the boy to decide what he shall be.

We should give each boy something to know, something to love and something to do. That is, we must train his mind, his heart and his hand, and while doing these three we train his will.

The problem of the church and boys is not different but is larger than that of the boys' club. The boys' club seeks character. The church seeks Christian character. The methods of the church should be those which I have already named with those additional ones which shall encourage a definite decision for Christ during the period of choice and which shall establish and exercise that decision. Religion in a child is like measles—it breaks out in the face before it does in the hands. It is as necessary to secure Christian activity as it is Christian allegiance.

Not only does each boy have his own time and form of crisis but he has his own way of beginning the religious life. In the Episcopal church the boy is trained to believe that he is a child of God. At adolescence the confirmation class awaits him to seal his relationship and his crisis is likely to be one of forming fresh ideals only. In some churches boys are told that they are the children of the world, if not of the flesh and the devil. They expect and usually reach a very sharp crisis of definite Christian purpose.

Mr. E. M. Robinson, International Boys' Secretary of the Y. M. C. A., has put these differences of experience in a vivid and homely way.

"Boys enter the religious life in at least as many ways as they enter the water for swimming: (*a*) Some plunge in—a definite decision which settles once for all what their attitude toward right and wrong shall be, what their relation to their God shall be. (*b*) Some wade in—deliberately, cautiously, step by step, each step revealing that another step is desirable.

(*c*) Some run in a little way and then come out again, but continue to run in a little farther each time, till at last they swim off—a number of changes of mind. (*d*) Some are forced in—they may, finding themselves in, decide to remain, or they may make frantic struggles to get out. (*e*) Some sit down on the beach and simply let the tide come up about them, till it floats them off—by not resisting the tide about them, they practically accept the situation. A boy enters the religious life by deliberate, comprehensive decision, by an accumulation of little decisions, by non-resistance to influence about him, which is a decision. In all cases, by his own choice accepting, or decision."

My own ideal scheme for a system of church education for boys is as follows. Although the list may seem formidable, it requires only the instrumentalities and workers possessed by the average church.

I. Co-ordination with all other means of education—home, school, play-ground, vacation, library, museum, local historical sites, etc.

II. The following church instrumentalities:

The Sunday morning service,

The Sunday School,

A boys' club affiliated closely with Sunday School, with no clan or cast of religious profession attached.

Home visitation and consultation (with an enrollment by personal inquiry of the boys' separate interests and experiences).

III. Scheme for church education of boys:

1. Religious training:

Weekly children's sermon.

Sunday School instruction: Old Testament first, then life of Christ, then Christian ethics.

Decision Day, preceded by a few special children's meetings, explanatory of the Christian life.

Special training in

how to use the Bible

how to pray

how to serve Christ, following Decision Day.

Seeking opportunities for service for children: choir, ushers, entertainments; individual activity.

2. Will-training:

Wood-work

Games, puzzles, conundrums

Rewards for church and Sunday School attendance.

3. Heart-training:

Liturgy

Bible and hymn-learning

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Music
Drama
Stories and pictures
Knights of King Arthur (at the boys' club meeting)
Pets
Personality of leaders.
4. Mind-training:
Collections
Printing
Saving
Missionary and general information.
5. Physical Training:
Marches and Drills
Wood-work
Tramps, Tours.
6. Social Training:
Socials
Entertaining others
Missionary giving.

The needs and possibilities of work for boys tempt the student into the fields of enthusiastic rhetoric. One third of the people in America are adolescents. Three million of the human beings in America are boys between twelve and sixteen years of age. The so-called heathen peoples are, whatever their age, all in the adolescent period of life. What a field! How suggestive to philanthropy and to missions!

The attention of the church during the last twenty years has so swung toward the young that it takes no prophet to foretell that this is to be the central work of the church in the new century. Jesus, who appeared before the world at the beginning of his adolescence and left it at its close, set the Child in the midst and said, "Of such is the kingdom of heaven." The psychologist and the Christian are both listening to this word of the Master.

In the development of the boys' department of the Y. M. C. A., and in the growth of the big city boys' clubs, in the founding of such institutions as the Bible Normal College, whose motto is Horace Mann's "Wherever anything is growing one former is worth a thousand reformers," in the opening of a new profession, that of the teaching ministry, in lay work in the church, we have abundant intimations that the field of work for boys is soon to offer many opportunities for many men's life-work. In the smaller groups of those engaged in social service, in the Sunday School and the other forms of church nurture, the harvest is already white for splendid consecrations of volunteer helpers.

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This is the New Crusade. This is the "Student Volunteer Movement" that has an appeal at home as well as abroad.

Let us help make the men of to-morrow!

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RECENT GERMAN DISCUSSIONS ON FOLK-LORE IN THE SCHOOL.

By Alexander F. Chamberlain.

The delight of children in fairy tales and the common confession of genius that the blind harper, the gypsy story-teller, or the *ayah* of many tales, first created a real love for that larger song and story, of which all the great literature of the world consists, are proof enough that Folk-lore is a mighty force with the young. Among primitive peoples, it is often almost the sole means of literary culture, aside from that self-development, unchained to race or clime, or age, which creates the seer, the poet, and the sage. If, as many argue, and as science seems now to have largely demonstrated, the childhood of the race and the childhood of the individual are parallel in their development, there is good reason to seek out in the literature of the former the food for the nascent intelligence of the latter. An impetus in this direction has been given by the "Child Study" movement, which for ten years past, especially, has sought to furnish a natural basis for the education and instruction of children, by investigating the fundamental phenomena of childhood in their relation to the corresponding phenomena in the life and thought of primitive man.

The story, one of the prime elements in Folk-lore, has always had a place in education since the beginnings of human society. As Mr. E. S. Hartland well says (p. 2):

"The art of story-telling has been cultivated in all ages and among all nations of which we have any record; it is the outcome of an instinct implanted universally in the human mind. By means of a story, the savage philosopher accounts for his own existence and that of all the phenomena which surround him. With a story, the mothers of the wildest tribes awe their little ones into silence, or rouse them into delight. And the weary hunters beguile the long silence of a desert night with the mirth and wonders of a tale. The imagination is not less fruitful in the higher races; and, passing through forms sometimes more, sometimes less serious, the art of story-telling unites with the kindred arts of dance and song to form the epic or the drama, or develops under the complex influences of modern life into the prose romance and the novel. These in their various ways are its ultimate expression; and the loftiest

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genius has found no fitter vehicle to convey its lessons of truth and beauty." In his chapter on "The Art of Story-Telling," Mr. Hartland shows how the unwritten word of the travelling tale-teller has often been more powerful than the printed page of the Scriptures; how much real basis, indeed, there is for the famous statement attributed to "a very wise man" by Andrew Fletcher, of Saltoun, that "if a man were permitted to make all the ballads, he need not care who should make the laws of a nation." Concerning the educational employment of the story among certain American Indian peoples, Dr. F. C. Spencer observes (p. 80): "The Pueblo child does not receive commands to do or refrain from doing without the reason for the command being given in the form of a story, in which the given action is portrayed with the good or evil resulting to the doer. These legends, or folk-tales, are very numerous, so that one may be found to illustrate almost any case that may arise." And what is thus written of the Pueblo Indians of Arizona and New Mexico will stand for many other peoples, barbarous and savage. Moreover, the difference between savagery and civilization is so largely one of degree and not of kind, that the story-teller is still the most potent force among men, albeit his appearance is often so sudden and his reign so short. The *word painter* has not yet ceased to be the greatest human artist, for, if ten people will buy a cheap reproduction of a *succès d'estime* in brush or pencil, a hundred will purchase the low-priced edition of the season's best romance. The whole world still loves a good story-teller,—he is vastly more personal to men and women than the most renowned painter or sculptor. Even to-day, story-telling is, as of old, one of the arms of the diplomat, one of the ornaments of the pulpit, one of the charms of the teacher. The professional story-teller is rarer than in ages past, but when he arrives, the world welcomes him with open arms; again and again does a Kipling or a Stevenson stir his race in the ancient way.

Song, too, comes down to us from the elder day. Says Miss Alice Fletcher: "Among the Indians music envelops like an atmosphere every religious tribal and social ceremony, as well as every personal experience. There is not a phase of life that does not find expression in song." This is true, too, of civilized races to a very large extent,—time and time again have they rhymed themselves into ethical conduct, social harmony, religious contentment. In our day the vogue of a Kipling proves that the art and the love of it are yet alive among men. How near the heart of the childhood of the individual lies to the heart of the race's childhood appears from the investigations of Miss Gates and others who have recently studied the phe-

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nomena of music and song among school-children in various regions of the globe.

Miss Wiltse, one of the pioneers of "Child Study," long ago made an appeal for a wider recognition of the story in the education of the young, and some fifteen years have elapsed since the appearance of her book of stories for school purposes. To-day the volumes of stories, myths, legends, etc., "adapted" for school use, increase in size and in number, though not so much in quality. There is also a plentiful crop of stories for children "written by children and illustrated by children," dismal failures some of them, and justly so since the ethnic life-giving power is absent from them altogether. A few of them, however, are chips of the old block, able to float on the tide of time. The difficulty of providing tales for telling in school, as well as the dangers involved in making education a set of continued stories or pleasing romancettes, is well illustrated by Dr. Ehrenfeld's recent volume on "Märchen" for the school. Education may very well be "play with a deeper meaning," but the *modi operandi* of the game have not yet been wrought out.

Back of the individual singer and romancer of to-day, of other days, lies the immense and largely unexplored wealth of folk-tale and folk-song. How to utilize this for the child, for the teacher, for both, is the real live educational question. The story, the song, folk-music, even, have crept in here and there, in various disguises and under various names, but the modern school has yet to make the most in some way of the immense riches of real folk-lore that have never yet been touched, even in Germany, where the folk has never been quite forgotten in the school. The effort to give folk-literature an abiding place in the school curriculum is once more attracting general attention, particularly in Germany, where it has always had some sort of recognition and figures even in the "new plan of instruction." But there is still abroad in the land, an impression, shared in certain high quarters, that mythology and folk-lore are, after all, "heathen" and not Christian, and should be used in homœopathic doses if at all. So, at the present moment, the question of the complete utilization in the school-curriculum of the riches of folk-lore in all its branches is still a moot one. *Christlich-Germanisch* is still something to conjure by in the land of Arminius. Moreover, the classics have too firm a hold upon the gymnasium to let its doors open freely to Teutonic folk-lore,—classic tradition outweighs German patriotism. "Folk-Lore and the School" is the title of a very interesting paper by Dr. Oskar Dähnhardt, of the St. Thomas Gymnasium in Leipzig. Here the patriotic and ideal content of folk-song, the culture-historical value of the songs of the workshop and of travelling industry, the ethical significance of

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folk-tales, the nature-study material afforded by the lore and legend of the folk, the wit and wisdom of riddle, proverb, rhyme, and jest, the social value of popular ceremonies, festivals, celebrations, rites and customs, are pointed out and enlarged upon. All these folk-phenomena present so much that appeals to the interest, the emotions, the physical, psychical and social activities of childhood that their neglect during the school-period is nothing less than criminal. What can instill patriotism into young hearts better than the folk-stories of the heroes of the race? How can arts appeal to the interest and sympathy of the child better than as they appealed to the race itself when it was young? Then thought and deed went forth together in the first labor-songs. How can justice and mercy sooner win the suffrages of childhood, their applause for high ideals, than by the time-honored means of folk- and fairy-tale? What rhetoric and composition are better for the child than those by way of which his ancestors first grew eloquent? How can he better adorn his budding wisdom than through the inspiration of the imagery and figurative language of folk-thought? What keener, and yet kindly, wit will he ever acquire than that native to the proverbs, riddles, and jests of the folk? What rites and ceremonies can interest and employ the child more naturally and more satisfactorily than those which once fascinated the race in its childhood? What better ground-work for science than the *naïve* interest of the folk in nature, which, when unimpeded, so readily passes over into the unspoiled child? And no folk-literature, if we believe Dr. Dähnhardt, is richer in all these things than the German. Nowhere better than in Germany does folk-custom survive,—Christmas, Easter, Midsummer, Harvest, are nowhere else so richly celebrated and remembered. Some efforts in this direction, some attempts to make folk-lore fruitful in the education of the child, beyond the old-time ways, have already been put forth in Christiania, Copenhagen, Helsingfors, etc., and at the St. Thomas School in Leipzig. In Germany, as in America, the geography hour and the ancient history hours have been seized upon in many places to interest the child in the lore and legend of their own land.

As Dr. Dähnhardt has suggested, the pupils might themselves collect songs, rhymes, tales, legends, items of folk-lore and folk-thought of all kinds. Often they would be stimulated to take a permanent interest in folk-lore and develop, perhaps, real scientific genius. There is, indeed, on record, more than one example of this. Ch. Rugger, the author of "Aberglauben, Volksglauben und Volksbrauch," published in 1890, tells how his interest in the subject was stimulated some thirty years before, when, a sixth-grade pupil, he collected folk-lore

data for Mannhardt, whose *questionnaire* had been distributed to the teachers. Dr. Dähnhardt, himself, has published a collection of school folk-lore, the result of inquiries at the Thomas Gymnasium in Leipzig. Here the children have already begun scientific work in helping to collect and to preserve the folk-lore of the present generation.

Dr. Dähnhardt is also the author of a very interesting collection of folk-tales about nature and natural phenomena, which appeared in 1898. He emphasizes here the value of "observation myths" (the myths that are intended to explain why a certain thing exists, why it has or has not, certain peculiarities), the *pourquoi*, as they are neatly termed in French. By means of a judicious employment of such tales, the teacher might convey a good deal of lasting knowledge to the child. Other valuable books along similar lines of thought, are Rosencranz' "Popular Superstitions About Plants," and Söhns's "Plants: Their Names and Their Place in Mythology and Folk-Superstition," the last being especially attractive and suggestive. Müllenhoff's "Folk-Lore About Nature," is also a very good book. Quite in line with Dr. Dähnhardt's plea for the recognition of folk-lore in the school-curriculum, is F. Beyschlag's discussion of "Folk-Lore and Gymnasial Instruction," in which its introduction into the higher schools is strongly advocated, the keynote of the essay being Goethe's famous lines,

> "Was du ererbt von deinen Vätern hast,
> Erwirb es, um es zu besitzen!"

Although not printed till January, 1900, Dr. Beyschlag's paper was finished in August, 1898, thus antedating Dr. Dähnhardt's article, as also a paper by Mogk, in which the question of introducing folk-lore into the schools is broached.

According to Dr. Beyschlag, the teaching of the German language, of German history, of geography and natural history, of singing and music, of classic and modern languages, etc., can all gain much from the study of folk-lore as a part of the school-course. The pupils will all receive lasting benefit from these glances into the depths of the folk-soul, where lives so much of their own genius and *naïveté*. They will develop a warm feeling for the life and poetry of the folk, a deep interest in the essentials of nature and of man, the beginnings of true science and of real religion.

The introduction of local folk-lore into the schools was strenuously advocated some years before by A. Grüllich, who holds that the *Sage* is the means by which the children of to-day can best come into touch with the spirit of the fathers. In a sense, the *Sage* is history's decking out of the home-localities for the

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children's sake. For their home-sense, their nature-lore, their treasures of ethical ideas, local legends and folk-literature should be heartily welcomed in the schools. Something better, too, is needed than mere Herbartianism or culture-epochism, if the *Sage* is to be a real thing of life and beauty to the child. The various merits of Thuringian and Schwabian *Sage* in relation to "Robinson," the Nibelungen and the Bible, have been discussed at great length by German writers, some of whom, in the details of their pet schemes, bury the living folk-lore in the dead interpretation. And some American writers have followed them.

Another appreciation of folk-literature in the school is that of Gräve. According to Gräve, it is the duty of the German public schools to cherish the virtues of the folk and so to preserve the best national character. No better means of so doing exists than through German folk-literature. The public school ought to be the home and the nursery of folk-literature of all sorts. Folk-tales, folk-speech, and folk-song are mirrors of German folk-character, and may be made the uplifting and idealizing force which shall work against the evil and debasing tendencies of modern materialism. Beginning with *Märchen* in the lower grades, with the *Sage* and kindred lore in the middle and higher grades, the teachers could utilize almost the entire round of folk-literature in the course of instruction. The reading books also ought to contain material to this end in appropriate amount and arrangement.

The technical treatment of Germanic mythology and hero-lore in the curriculums of the higher schools and the place of the various branches of the subject in the scheme of education are treated of by Dr. A. Zehme, of Düsseldorf, in two very recent papers. According to Dr. Zehme, one of the strongest objections urged to-day against a larger recognition of Germanic mythology and folk-lore in the curriculum of the gymnasium is that it would lead to a one-sided estimate of that culture-material, as opposed to the classic literature which is still the basis of most of higher education in Germany. Dr. Zehme defends Teutonic folk-literature from the charges made against it, that it is heathen, and neither moral nor æsthetic. With justice, he remonstrates against the fashion of pillorying Teutonic mythology as "dim and shadowy" as compared with "the bright, plastic forms" of the Greek. A considerable portion of his first paper is devoted to indicating the place and use in the school-course of the lore about the soul, elves, giants, etc. The first part of the second paper is concerned with arguments pro and con as to the right of mythology and folk-lore to a place in the curriculum of the higher schools, and the remainder to a

detailed account of the ethical value of such study for culture-life, art, literature, sculpture, painting, etc.

The case for the utilization of folk-poetry in education has recently been very ably stated by Prof. H. A. Graevell van Jostenode, Belgium, whose last articles have appeared in an American pedagogical journal, published at Milwaukee, Wis., in German. The author points out how little real food for the child-mind the school-curriculums offer in comparison with mental pabulum for adults, and even when the *folk* are represented it is the ancient classic and not Teutonic lore that is most highly esteemed by the teachers and insisted upon for the pupils. All too often in the presence of Greek and Roman story the Teutonic folk-heroes are "unbenannt und unbekannt." Only by rightly using the Teutonic *fond* can pupils be made to *feel* folk-poetry, and enter really into its "poetische Unschuld." What is wanted is not the spirit of drawing-room folk-lore, of *Salontiroler*, but actual recourse to that fountain where "the folk-soul pours forth its whole feeling and willing in song."—the poetry that is life. The poetry beside which the artificial compositions of the day seem but hot-house products. The poetry that is the wild-rose the children love, not the green-house plant they are got to admire. The folk-poetry that is a truer product of the Aryan mind than the art-poetry of a later day. Nowhere else can the child become acquainted with that peculiarly German troth with God and man, with high and low, with animals and plants, with all nature, in fact, without which life is vain and hollow. So, too, with the untranslatable *Gemüt* and the idealism of folk-literature. There is no one who has listened to the blind South-Slavonic singers of folk-songs, or to their Germanic peers, but has felt moved to declare "the sun of Homer smiles on us still." There is all, and more than all, of the good in classical literature in Teutonic and Slavonic lore and legend. Nor are the old folk-melodies to be neglected; the charming ballad dances, such as survive even now in the Faroe Islands and other places within the Germanic and the Scandinavian area. The singing of these old folk-songs in the schools cannot be without its good effect. Teutonic and Scandinavian, *folkeviser* are full of deepest significance for the growing child, and they far outweigh the artificialities of the pedant still so much in vogue.

In several of his earlier publications, especially in his "Classical or Popular," published in 1896, Prof. Graevell van Jostenode has given expression to this belief that modern education needs the folk-spirit and not the pedant-soul; the poet of all poets is the folk, and the child lies close to him. Another recent and suggestive contribution to the subject is Muthesius's recent little book on "Childhood and Folkdom," in which

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the author, while not advocating the adoption of folk-lore as a special branch of the school-curriculum, insists that the teacher should be educated in "folk-lore" and bring to his profession all that the individual can reap from the rich and inspiring soul of the race. According to Muthesius, a folk-hearted teacher, with the lore of the people at his command, is rather the ideal than the creation of a new department of the curriculum.

Doctors, it would seem, differ here as elsewhere, but those who would cultivate folk-lore for the sake of the child, seem now to have the best of the argument in Germany, as they have had it also for some time in America, with the able support of President Hall, Dr. Paul Carus, etc. But it is the live folk-lore we must have, not the dead, the heath-rose and not the hot-house lily.

Foremost among the leaders of the movement to make the folk-spirit effective in German education, to fertilize the school with the deep streams of "Teutonismus," instead of the artificial canals of classical "Pedantismus" was Dr. Rudolf Hildebrand (1824-1894), whose whole life and thought, whose speech and whose writings, were the expression in the individual of the life and activity of the folk in its highest and noblest significance. Philologist, poet, philosopher, man of science, and teacher, all in one person, he was one of the "makers" the result of whose labors the next century will surely reveal. His "Contributions to German Education," published, after his death, in 1897, contain, perhaps the most telling arguments ever advanced for the educational utilization of "folk-lore," in the real sense of the term. It will be largely owing to his influence that the ideal of Hermann Grimm will one day be realized, and German youth who have so long become acquainted with their own land only through Italy and Greece, come to know Italy and Greece through Germany. Then will begin the real "German Period," whose advent has been so long delayed, but whose appearance will be as glorious as any "Renaissance" the world has ever seen. To unite the modern scientific spirit with the folk-spirit is the real problem of education. In Hildebrand, the individual, this was in great part accomplished, and the people to whom he belonged will as surely accomplish its part of the task. "Folk-Lore" is thus destined to be the great resource, which the nations of to-day, after they have exploited materialism to the full, will perforce use for their educational salvation. This is the real *vox populi vox Dei.*

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prove useful to any one wishing to go into the matter in greater detail than the present writer has desired to do. The special Herbartian Culture-Epoch literature is not included.

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NASCENT STAGES AND THEIR PEDAGOGICAL SIGNIFICANCE.

By E. B. Bryan.

Introduction.

The general aims of education may be classed under two heads: (*a*) Those that emphasize the individual. (*b*) Those that emphasize society. There are those who hold that if all the latent powers of the child, mental, moral, and physical are developed fully and symmetrically with entire emphasis upon him as an individual, we not only get the best individual product possible in a given case but the best social product as well. On the other hand there are those who hold that inasmuch as the child is born of society, is a member of society, and is becoming more and more a potent member of society, his training should be given him with a view to the needs of society rather than to his individual needs, believing that thereby not only is the best social product assured but also that the best has been done for the individual as such.

There is truth in both these thoughts, and when they are reduced to their lowest terms, we have simply a question of relative emphasis of two fundamental factors in the aim of education. But whichever phase is emphasized, this surely is true, that any attempt at curriculum making or educational procedure which does not take into account the laws and stages of the development of the one to be taught, is apt to go wide of the mark and induce arrested development either by holding the child to work which belongs to a lower stage of development or by rushing him on precociously to work which presumes a development which he has not yet attained.

Therefore, from whatever standpoint we view the aim and problem of education, a knowledge of the stages in the development of people, of the abrupt turns and the deep places in the stream of human life, of the nascent periods, so to speak, of human development is of prime importance.

In educational literature many hints of the importance of such knowledge are found, and much of the work done in schools and colleges is purported to be based upon such knowledge; and yet, with the exception of the periods of pubescence and adolescence, it must be admitted, I think, that our information

has been very vague and limited and that the ground on which we have stood has for most part been only a feeling, variable as individuals are variable, that such and such things are true.

In general literature, the thought that human life is not an unbroken continuum but rather moves in great beats or stages is quite pronounced and dates back to very ancient times.

An historical study of religious ceremonies performed at certain ages shows how deeply the idea has worked itself into the religious consciousness. A brief but careful study of the contemporary religious consciousness has revealed the same thing, and the special studies upon conversion, backsliding and other religious phenomena bring out the same results.

The change of seasons, the succession of crops, special days for special things, all emphasize the thought that there are certain times that are peculiarly fitted for certain things.

The old faculty psychology dividing the mind, as it does, not only into intellect, sensibility, and will, but also into the chronological apartments of perception, memory, imagination, judgment, reason, etc., while largely the result of speculation, is doubtless to a degree both the result of this folk-consciousness and also a potent cause for the tenacity with which the educational world at large clings to the idea of successive stages in development.

Teachers and students have experienced that some things come comparatively easy in early years and other things in later years, and consciously or unconsciously arrive at the conclusion that there should be an adaptation of the kind and amount of work to the stage of development; *i. e.*, that certain times are ripe times for certain things.

A limited number of experiments upon animals, together with every day observations, tend very strongly to confirm this thought. The results of Spalding's (35)* work with the chick re-enforce the thought and James (20, Vol. II, p. 398) brings out the same thing in his chapter on Instinct.

Returns from two thousand teachers emphasize very strongly the fact that if children at certain times have a longing for, or show an aptitude in Drawing, Music, Manual Training, Athletics, etc., but are deprived of the opportunity for culture along these lines, they are apt to lose their interest or aptitude or both.

It is thought that children who become blind before a certain age are not apt to have visual images, while those who become blind after that age are apt to have visual images. The same thing is supposed to be true of the other senses, notably the sense of hearing.

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*The figures in parentheses refer to similar numbers in *Authorities Cited* at end of the article.

Donaldson (14, p. 37) says: "Development and the changes involved in growing old, are by no means synonomous, so that although in those animals with a fixed size there are always to be found undeveloped cells, yet it is not a correct inference that these cells are also young in the sense that they might still complete their development. It appears, rather, that the capacity for undergoing expansive change is transient, and that those cells which fail to react during the proper growing period of an animal have lost their opportunity forever."

The studies that Barnes (3) has made of children's interests show that the things in which children are apt to have a lively interest vary with age.

All of these things point to the possibility of more or less definite stages or nascent periods in development, and the purpose of this paper is to collect and formulate the evidence for such a theory in its application to human development, and to make pedagogical deductions from this evidence.

Hartwell (17) divides the first twenty-five years of life into four stages (1) Infancy from birth till the first dentition. (2) Childhood, from the first to the second dentition at seven or eight years of age. (3) Boyhood or Girlhood, from second dentition to puberty at thirteen or fourteen years of age. (4) Puberty and Adolescence, from thirteen to the beginning of the twenty-fifth year.

Lange (23) has four stages. (1) From birth to two years, highest rate of growth. (2) From two to twelve years, decreasing annual increments. (3) Twelve to fifteen years, mental growth. (4) Fifteen to twenty-one years, a sudden decrease in annual increments.

Zeissing (7, p. 255) found three stages. (1) One of decrease in the yearly increments of growth up to nine years. (2) Increase of yearly increments to the seventeenth year. (3) A later decrease.

Vierordt (7, p. 325) has seven stages. (1) From birth to eight months. (2) From eight months to seven or eight years. (3) From seven or eight years to fourteen years. (4) From fourteen or fifteen to twenty-one or twenty-two. And then early adult, later adult age to the sixtieth year, and old age. Clouston (11) divides the years of development into three stages. (1) From birth to seven. (2) From seven to thirteen. (3) From thirteen to twenty-five.

That there are varying rates of growth in the development of a child has been established beyond question. There is the seasonal rhythm now slow now fast, there is the variation due to nutrition, variation due to disease, and variation due to increase of function; so that the curve of development is not a straight line.

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Also, it is pretty definitely known what an average child (if such a thing there be) is capable of at a given age. (We know, for example, that it does not walk and talk at six months but that it does at thirty-six.)

Special studies upon individual children have made much more definite the general notions of the unscientific but sympathetic observer of children. So that we have a vast amount of unorganized data for the work scattered here and there covering the entire developmental period. It is no part of the purpose of this study, therefore, to redemonstrate that the curve of life is a broken and not a straight line or even to make a contribution of new data. It is rather a work of organization and interpretation of facts worked out by various observations, researches and experiments with a view of finding what truth and significance there may be in the theory of nascent periods; what these nascent periods are in themselves; and what relation they bear to one another. For a convenient résumé of the many theories concerning the periods of childhood the reader is referred to Dr. Chamberlain's book on *The Child* (8a pp. 51–105).

The hope of fixing hard and fast limits for each or any of these stages is not entertained; the limits will vary with individuals as everything else does. But it is the hope to show on physiological and psychological grounds that in the development of the child there is a series of periods each more or less homogeneous in itself, but widely different from all the others, that each period serves as a propædeutic to the one that follows and that each is preceded by a relatively short transitional period characterized by mental and physical disturbances which serve as the time for rearrangement and preparation for the stage which is to follow. I wish then, in the light of what is found to be true of these periods, to make deductions of some the more obvious pedagogical principles.

I.

Infancy.

Following the months of pre-natal existence, comes birth with the first days of life's experience. Psychically, there come rolling in upon the child floods of sensations, meaningless in most part and of no present value to him. "All its senses," says Perez (27, p. 8)," are battered by repeated shocks of strange impressions, and it's wailing cries indicate how painfully these are felt." I think it questionable, however, whether the cries are due so much to the feeling of pain or whether they are merely reflexive. Clouston (12) I think, comes nearer the truth than Perez when he says that, "At birth a child is absolutely destitute of mental faculty. The thing does not ex-

ist. All competent observers agree on this point; and all newly-born children are equally mindless. There is no exception. But why does the child cry, and seem to feel pain, and move, and feed himself? Those at first are all automatic, or reflex actions unaccompanied by mind, the apparatus for performing which in the brain and spinal cord, is almost perfect at this time, while the mental apparatus is undeveloped. He breathes, too, as well as ever he will do, just because the group of nerve cells in the brain that produces and regulates the breathing movements is perfect at birth."

To quote the much used expression of Prof. James (20, p. 16) "The object which the numerous inpouring currents of the body bring to his consciousness is one big, blooming, buzzing confusion. That confusion is the baby's universe."

Physically, during the first week of life, the child looks like itself no two days in succession; it readjusts itself to the new environment; it breathes, it takes food through the mouth, every sense is appealed to by outer stimuli, a change in movement is possible, and the child becomes less plump and loses in weight. Perez (27, p. 10) says: "Up to the third day there is a diminution of between three and four ounces in their weight, and it is not till the sixth or seventh day that they get back to what they were at birth."

Bayard Holmes, M. D., (19) says: "During the first three or four days after birth there is a normal loss of weight of between 6.15 and 6.96 per cent. The average loss of weight is 222 grammes. This is followed by a rapid increase in weight, which is greatest during the second month."

It seems, therefore, that the first few days of the child's life are not a continuance of the pre-natal development, but serve rather as a transitional period, characterized by various psychical and physical disturbances, of readustment, and preparation for the stage which is to follow.

For some months following these earliest days, if the child be normal, there is a gradual development—not a development due so much to its reactions upon outer stimuli, but rather an unfolding of its life, the child remaining for most part passive in its relations to the outer world, being receptive rather than expressive.

By way of food, clothing, etc., it takes what is given it, its only means of expressing its disapproval being more or less unintelligible mimetic gesticulations and crying. During the first months it cannot balance its head; it cannot sit, nor stand; it cannot roll over, creep, walk, run, jump, or climb; it cannot talk; it cannot eat. Its ability as an aggressor is nil. Nevertheless its power to react, to express itself both mentally and physically, is increasing so that at the end of the third or fourth

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month it can balance its head; in a few more months it can sit alone, can roll over, and is beginning to creep; and in most cases, by the end of the first year, the child is creeping as well as it ever will; it is beginning to stand, is trying to walk, and climbs whenever an opportunity is afforded.

It is no longer unable to see as at birth but has its senses of sight and hearing developed, so that on the one hand by the time it attains its first year, its visual accommodation is perfect; it looks away at objects and has pleasure in seeing people and things. On the other hand, its sense of hearing develops from the fourth day when it is able to hear a sharp noise, until at the close of the first year, it not only hears a noise at a distance but adjusts its head to catch the sound. (28 for fuller discussion.)

During this time the senses of touch, taste and smell have kept pace with the sense of hearing and sight, so that from the physical standpoint, the child is freeing itself from its passive condition at the time of birth and is becoming more and more capable of an active life. In language, which has both psychical and physical factors, the child during the first year or year and a half, has made sufficient start to make his most common wants known; it distorts its words in many ways, is incapable of speaking in sentences, and finds it necessary to supplement and to re-enforce its oral language with all kinds of gesticulations which are as unskillful as the language itself. It has reached that stage where it is "beginning to talk."

We have no evidence that in the first months of a child's life it does constructive mental work; it does not plan and project, it does not arrange means for the accomplishment of preconceived ends; its mental life is not one of expression. It has sentiments of taste, fears and anger, animal and human sympathies, and often shows signs of affection; it frequently manifests presence of will; it is capable of slight attention; and it can imagine, remember, and associate. Perez thinks that very young children are capable of elaborating ideas in the form of judgment, abstraction, comparison, generalization, etc. However this may be, it is evident that they are not capable of consecutive thought and are not constructively effective. To use the words of Dr, Lukens (25), "Beginning with the period of almost pure receptivity and open-mouthed wonder and delight in the senses, the child very soon, however, begins to react and, as Froebel says, to make the internal external. In most children, for instance, there is a more or less clearly marked period lasting from a few weeks to several months, during which they understand nearly or quite all that is said to them but have not themselves begun yet to speak."

In the Neuroses of Development, Clouston (II, p. 8) says:

"Sensation, common and special, come next soon after birth, and we have reason to believe that its peripheral, receptive apparatus and brain centers rapidly acquire perfection, though its future mental interpretation is a gradual and slow process. Most of the motor processes are more gradual in coming to perfection, and, indeed, cannot be said to have arrived to that stage till adolescence is nearly completed."

One may safely say, then, that during these first months (12 or 18) the sensory side of the child has developed much more rapidly than the motor side. It has been appealed to in a thousand ways; it has been awakened, but for most part it has been a recipient in a telling way, but not an effective actor. Its chief business has been to grow and not to act. This is shown by the fact that at the end of the first year the child should be three times as heavy as at birth and half as heavy as it will be at seven years of age (30). Its increase in height the first year will never be equalled in any succeeding year. The increase in brain weight should be five times as great (381 grammes, 945 grammes) as for any succeeding year.

On an average, the growth of the brain the first year is equal to more than one-third the entire weight at maturity (37).

It is important in this connection to know that out of every one thousand children under one year of age, two hundred twenty, or 22 per cent., die annually. "When we realize that the mortality from typhoid fever is less than ten per cent. of the individuals affected, and that the mortality during the first year of childhood is over 20 per cent., and therefore, infer that it is just twice as dangerous to be an infant under one year of age as to have typhoid fever, some idea of the delicacy of the individual at this period of life may be obtained." (10.)

The child's chief business, then, is to keep alive and grow.

The pedagogic question is, what are the best things that can come into the life of the child during these earliest months? Inasmuch as growing is its chief function, all the conditions for normal growth should be observed and all the causes of arrested development averted.

There should be no crowding; there should be little restraint and all undue excitement should be avoided, lest the delicate nervous system be irremediably shocked. One of the prime conditions of normal growth is a sufficient amount of wholesome food, but at this stage the variety of food should not be great if indeed it should not be limited to the one kind which nature has expressly provided. The child is unable to properly prepare solids for digestion and they should be kept from it until it is provided with teeth and proper strength to

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use them effectively; and until the alimentary processes are confirmed. Another condition of normal growth is a sufficient amount and proper kind of clothing; many babies are smothered out of their wits and frozen out of their growth. Cleanliness, sunshine, and an abundant supply of fresh air are prime requisites. It is known to every one that diseases and traumatisms interfere with the growth of the child and often cause permanent arrest of development; a judicious amount of care should be exercised to prevent disaster from such causes. Only such things as are conducive to the child's good health should be observed during these first months.

Its development, always in pulse beats, should, however, in the first months have no abrupt turns but should be a continuous wave line—a rather steady and uniform movement. This is the stage of infancy.

II.

Transition from Infancy to Childhood.

Then comes at a year or a year and a half of age (the time varies greatly with individuals) another transitional period of disturbance and readjustment. The child creeps or walks; it gesticulates or talks; it is having its second summer; its temporary teeth are coming; it is taking new food; it is passing from the stage of gastro-enteric diseases to the stage of infectious diseases; there is great change in its anatomical proportions. It is breaking away from the quiet receptive stage of the infant and is becoming aggressive, as is shown in its impulse toward migration so well brought out by Kline (22), so that when the transition is finally made, it no longer waits and passively receives what is brought to it, but goes after what it wants. It can climb and walk and run; it no longer waits until its mother bare her breast to gratify its hunger, but eats many things and has teeth with which to eat; it no longer makes known it's wants by grunts and vague gesticulations, but uses language for this purpose.

"From birth when the brain weighs about fourteen ounces up to two years when it has attained twice and a half that weight, there has been a series of new evolutions or creations of new faculties. After that there takes place a gradual perfecting of those faculties (12)."

"During the first two years of life, says Dr. Christopher (10), the child, as a rule, possesses a considerable deposit of adipose tissue. As he passes the second year of life and enters the third there is considerable change in his anatomical proportions. He grows in height and loses rotundity and plumpness, and passes quite rapidly from a period recognized as that of

childhood. From then on the dangers to the life of the individual from factors in direct relation with its growth and development are not so great as before. Then comes the period of infectious diseases."

Thus, the child has moved out of the purely receptive stage of the infant, through a period of disturbance, into the active stage of childhood at about the close of the second year.

In Miss Shinn's observations (33, p. 411), the child's first successful attempt at creeping was at the age of nine months; at standing, the close of the ninth month; at climbing, eleven months; at walking, twelve months; at running, the close of the fourteenth month.

In Prof. Preyer's observations, the child's first successful attempt at creeping was at the thirteenth month; at standing, the close of the ninth month; at walking, the sixteenth month; at running, the sixteenth month.

In Mrs. Hall's observations, the child's first successful attempt at creeping was at the age of thirteen months; at standing, twelve months; at walking, fourteen months.

In Mrs. Beatty's observations, the first successful attempt at creeping was at the age of nine months; at standing, eleven months; at climbing, twelve months; at walking, fourteen months; at running, sixteen months.

In Miss Shinn's observations, the habit of creeping was complete at the age of ten months; of standing, twelve months; of climbing, at the close of the eleventh month: of walking, thirteen months; of running, fifteen months.

In Prof. Preyer's observations, the habit of creeping was complete at the age of fourteen months; of standing, at seventeen months; of walking, at eighteen months.

In Mrs. Hall's observations, the habit of creeping was complete at the age of fourteen months; of standing, at fourteen months; of walking, at sixteen months.

In Mrs. Beatty's observations, the habit of creeping was complete in the tenth month; of standing, at sixteen months; of walking, sixteen months; of running, at nineteen months or later.

III.

Childhood.

The development of the child from this time up to the seventh or eighth year, while not precisely the same during any succession of months or years, will be marked by no decided turns. The annual increase in height and weight will not vary greatly, but there will be a steady growth in both these directions, very much less rapid than in the first year, and less rapid than during the years that immediately follow this stage. The child is becoming more and more active, but owing to a lack of development of the peripheral muscles and the nerves that control them, his movements are unco-ordinated so that he is not effective as a producer, and activity is its own excuse for being.

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tinue at a rapid rate; the brain grows rapidly and approximates its full weight at the age of seven or eight. The sensory side is still in advance of the motor, but the child is by no means receptive only. His activity resulting in no outer product of value, finds its immediate value in itself, and so this is the stage of play. His keen sensory side catches up every suggestion, so that this is pre-eminently the stage of suggestion and imitation.

He gets most of his information first hand through the senses; further than this his mental life is made up chiefly of reproduced images and crude products of the imagination, although he is capable of carrying on many of the higher mental processes in a simple fashion.

Unless spoiled, the child at this age knows no such thing as shame, or modesty; it is apt to be selfish and fond of teasing and bullying as has been so well shown by Burk (6). His notions of right and wrong are not clearly defined and are very vacillating. Any hint of a moral code that he may possess, is not of his own making but has been impressed upon him from without through suggestion rather than by precept.

As in the former stage, growth was the prime desideratum, so here it is the thing of chief importance; not so much a quiet unfolding of the lātent powers of the child as in the first stage, but rather a development through activity. But it must not be forgotten that the benefit derived here from the activity of the child is to be found in the child and not in the thing he does.

"During the period of brain growth in bulk up to the seventh year, when the full size and weight are almost attained, nutritive influences are of the largest value. How far this can reach positively, needs future demonstration, but is rich in promise; how far negatively, is well understood, but receives as yet insufficient support. There are during these early days more formative power and less output of energy exhibited." (36.)

All of the essentials for normal growth in the first stage should be diligently observed here as well. Nutrition, cleanliness, sunshine, fresh air, and care to prevent arrested development from diseases and traumatisms. But in addition to these things, there arises here the pedagogic problem of positive training, physical and mental.

The first question, of course, is this: Should the child receive any systematic training during this stage, or should we simply observe the foregoing conditions for growth and keep hands off?

This much can be said in regard to this question,—biology and psychology tell us that what one can do at any given time

depends more or less upon what he has been doing; *i. e.*, the life of one stage is determined by the life preceding this stage. From about two up to seven or eight the child is acting and reacting. He is giving himself his first kinks and turns. He is laying out the lines for his future automatisms and driving the stakes. His style of sitting, walking, speaking, throwing, etc., his style of reaction to authority, his style of social reaction, are all becoming defined and taking set during these plastic years. The lines are being laid for the child or against it whether it will or not. Enough care and systematic training, and no more, should be given during this stage as will assure the best approach in all of these lines to the years that are to follow. (The essentials for such guidance are *sensible* sympathy and a rare fund of insight and self control).

Where we do not know, the watchword should be "hands off." But the most common-place teacher or parent does know that if a child sits "humped up" the first years of its life the chances are that it will never sit erect; if it is allowed to fly into a fury and scream and tear its hair during these years, the tendency later on will be to do something worse; if it does everything in a slouchy, careless, half-finished way, with great difficulty will it ever learn to do them in any other way. If it is allowed to lie and steal with impunity, it will develop into a thorough-going liar and thief. Concerning these and similar things the child should not be allowed to develop at random. Who knows more, can do more; who knows less, should most assuredly do less. In a word, then, our motto for this stage should not be "hands off" but rather this: a better knowledge of child life, and greater sympathy with it, so that we may be able to know how and when to lay hands on.

Let us notice a second question—If the child is to receive more or less systematic training at this time, what should it be?

It has already been observed that during this stage the child's keen sensory side catches up every suggestion, so that on the one hand this is the stage of suggestion and imitation. This is one of the keys to the solution of the problem. Another key is to be found, I think, in the fact that this is pre-eminently the play stage. We have here a hint at both matter and method. (1) The greater part of the child's activity and, indeed, all of it at the beginning of this stage, should be play and not work. (2) Work should be only introduced gradually in proportion as the child develops in mental and physical control. (3) The child should not be held for a perfect piece of objective work.

In regard to method, but two things can be said with any degree of definiteness. (1) Suggestion should play an important role. (2) The spontaneity of the child should have full freedom.

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This gives us a basis for the discussion of these two practical questions: *a*. What things may be taught the child at this time? *b*. How should they be taught?

It would require many volumes to discuss the merits and demerits of the entire catalogue of subjects, so the purpose here will be merely to touch upon enough things to bring out the thought and illustrate the principle.

Let us make the application to the child's play, work, and conduct.

Play. If play is to serve its highest end, it must be play in the highest sense spontaneous for most part, free from outer direction and careless of ends. Play under close supervision is a self-contradiction—it not only defeats the ends of play but ceases to be play. Parents and teachers need to remember that to require children to play according to prescribed formulæ means to have them quit play and go to work, and at the same time robs them of all the benefit of the initiative; and that thereby the main avenue of approach to the child's life is closed. It is a matter of common observation that to know a child, or any one else for that matter, he must be free to live his own life. This free living of the child is his play. It is commendable in parents to join in the plays with their children, but if they do so they must do so for most part at the suggestion of the child, and play the part the child would have them play in a way he would have them play it. Kindergartners and teachers in elementary schools would do well to observe the same thing. To call work play, doesn't make it play, and any performance planned and closely supervised by the teacher, however attractive it may be in itself, realizes less in play results than in work results. This suggests the amount of freedom and spontaneity that should characterize the school plays of this early stage whether within or without the school room. If the kindergarten emphasizes play as an element in its curriculum, it must not be tardy in recognizing what are the essential elements of play. Furthermore, Sheldon (32) and Gulick (16) have shown that during these years children do not take kindly to organized play or so-called team work, and when inveigled into it are very unsuccessful. It must not be forgotten that during these years, the accessory muscles are not under good control, that movements are uncoordinated, that the child is not effective as a producer, and that activity finds its own immediate value in itself. Co-operation is essentially a work factor and not a play factor; and, this being pre-eminently the play stage, the child is not successful in co-operative games. Ample opportunity for *unorganized, unhampered, spontaneous activity* on the part of every child should be the play ideal of every kindergarten and elementary school.

Work. In considering the work appropriate to this stage, some things need to be restated as a basis for discussion. First, that the end of work is a definite product—physical or mental. Second, that this is the stage of imitation and suggestion *par excellence*. Third, that the accessory muscles are not under good control. Fourth, that the child's mental life is made up chiefly of percepts, reproduced images, and crude products of the imagination.

Taking them up in the order named, the child should be required to do only those things for which it has a fair degree of efficiency, otherwise, the end for which work is intended is defeated and through the force of habit a positive injury may come to the child. But those things for which he does have a fair degree of capability, he should be required to do. For, if it be true that at this time all work and no play makes Jack a dull boy, it is also true that all play and no work makes Jack a mere toy. The principle is equally applicable in the fields of mental and physical work.

In making pedagogical deductions from the second point, viz., this is pre-eminently the stage of suggestion and imitation, it need only be said in passing that both common observation and psychological reasearch have shown that this is true. (1: 2: 15: 18: 34.)

What the child gets through suggestion at this stage amounts to infinitely more in every way than what he gets in the form of precepts. To illustrate,—Neither formal grammar nor even language lessons are necessary to insure good usage on the part of the child that has lived among people who speak correctly; and no amount of both will insure correct usage on the part of the child that is not so situated. A year's change of residence served to alter in every way the pronunciation of two children aged three and six whose parents were entirely unaffected. Such cases could be multiplied indefinitely. In fact, suggestion and imitation are the basis for the development of language both in the race and the individual, and should be the chief and, aside from incidental correction, the only means of helping the child in his language at this time. Let the child hear correct usage and as soon as he is able to read let him have access to a variety of well written story books, and he will be helped infinitely more than by any amount of formal instruction. The latter method of helping the child not only fails in its purpose but even does positive harm inasmuch as it prematurely brings him to a consciousness of his own mistakes and of errors of which he would otherwise happily remain entirely ignorant. The language ideal at this time is saturation in good forms. Let the eye and especially the ear feast upon good language but never make the

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child acutely conscious of the fact that this is good and something else is bad. An acute consciousness of good usage is only second in harmfulness to an acute consciousness of bad usage. This is the ripe age to give the child a start in the foreign languages providing he is so situated that he may apply both eye and ear to the work. If those with whom he associates use the foreign language, and if the literature at his disposal is written in this language, almost as easily will he at this time learn this language as he did his mother tongue. But, if he hears the mother tongue only or mostly, and the foreign language in the class-room only, it would perhaps be better to defer the work till a later stage. (See p. 389.)

In the second and third points we have ground for determining the nature of the manual work suitable for this stage.

Since President Hall's first lectures upon the subject some years ago, and the publication of Burk's work ('96) on the development of the nervous system from fundamental to accessory, many kindergartners have very wisely discarded work which requires fine movement and delicate adjustment such as fine needle work, work upon delicately perforated cardboards, laying of small sticks, etc., and have harmonized their requirements in writing more with the facts of modern physiology and psychology, by making greater use of the board and allowing children to do this work on a larger and freer scale in every way. The effect upon drawing has been equally wholesome and this, together with the facts brought out by Lukens and Barnes, gives a pretty safe basis for determining the work in this subject at this stage. The researches of Ross (31, p. 83), Bryan (5) and Burk (8) indicate that from the standpoint of physiology and psychology, the work in drawing at this time should be just what Lukens (24) and Barnes (3) have found it to be when the child is unhampered and left perfectly free to express himself. The former have shown that there is but little peripheral control at this time but with proper practice control may be developed rapidly toward the close of this stage at seven or eight years of age, while the latter have shown that the earliest drawings of the child are apt to be mere scribbles. The former have shown that the child is incapable of fine movements and delicate adjustments, but can easily make larger movements, and the latter have shown that after the scribble stage the child naturally draws with a few large telling lines making the drawing quite simple. Lukens agrees with Barnes in his thought that this is the time for the alphabets of drawing but that the technique or grammar of the subject should be deferred till a later time, say about the ninth year, and Mr. Henry T. Bailey, in the Massachusetts Report of the Board of Education, ('94-'95) says that "if the power to draw is not acquired

before the end of the ninth year, it is not acquired in the public schools." (29.)

Inasmuch as the purpose of this paper is to set out in relief the stages in child development with some of the more obvious pedagogical deductions only, the subject of drawing as such cannot be discussed fully — merely some of the primal facts that will serve as guides in working out the details. As the ideal at this stage on the side of physiology and psychology should be not so much a definite product but rather a bridging over from the unorganized, uncontrolled movements at the beginning of this stage to a higer degree of mental and physical co-ordination and control at its close, so at this time the ideal in drawing should be not so much one who can draw, but rather a movement away from scribble to plain definite lines whose combinations have more or less meaning. (Great care should be taken to avoid arrest of development either from crowding, retardation, or reversion.) Inasmuch as suggestion plays so important a role at this time, "interest in drawing should be early developed by giving children access to an abundance of good pictures, illustrated books, magazines and plates of great men, great scenes; and great sculptures, paintings and edifices. These helps are of the utmost importance in all art education, and should be in the environment of the child from the beginning. Drawing thus becomes a pleasure to children, and they acquire considerable skill without any instruction." (24.)

The general principles in a rational course in Drawing would serve equally well in other lines of manual work. Local conditions will be a determining factor in the technique of all of this work, but not in the principles underlying it. And, in all of the manual work up to seven or eight years of age, the spontaneity of the child should be allowed to assert itself. In many cases other forms than drawing will be taken up. Instead of drawing many children take to paper cutting first, and follow this with drawing. I have seen the pictures of animals, cut by a boy seven years of age, so true to life that even the mental mood of the animal could easily be detected. Although the pictures in themselves were plain, the conception and execution were that of a potential artist. This work for him was, above all things else a mode of expression, just as speaking, writing or drawing are for other children. It was followed by coloring and writing with unusually rapid progress in both. It is difficult to guess what the results would have been if this child at the age of four or five had been required to conform to a cut-and-dry course of manual work. But we can not take what this child did so well as evidence that all children of his age should do a certain amount of paper cutting. The valuable pedagogical suggestion that it contains is that children should be supplied

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in the home and in the school with a variety of materials and have an opportunity to express themselves with perfect freedom.

If the development of the race and child have any pedagogical significance, this is evidently the ripe time for the beginning of the study of nature. We are not, neither shall we be, free from the need of and interest in the three fundamental human needs, viz., food, clothing, and shelter. The poet and philosopher can not prosper on rhyme and speculation alone. They, as well as the scientist and laborer, must have life before they have their own peculiar lives; they, too, must be fed, clothed and sheltered. We have here a center in which the interests of all humanity converge. The poorest and most ignorant have little more, and the most favored have nothing that can be substituted for them. The need for biologic knowledge was the first and continues to be the primary need of life. To know in some way which things are for us and which against us, which will cure and which will kill, in short to know the life with which and in which we live is our primary need. This is not only true chronologically, but logically and biologically as well. There is no escape from it. If there is any truth in the "recapitulation theory," and if the natural, spontaneous interest of the child is to be a determining factor in the selection of material for the kindergarten and elementary school, it would seem to be a gross error to omit those things which have been the earliest and most persistent elements in the development of the race and in which the child finds its greatest delight.

It would be outside the scope of this paper to discuss the standpoints, sources, and methods in Nature Study, suffice it to say that the most prevailing standpoints are what are known as the (1) Mytho-poetic, (2) Human value relation, (3) Ethical value, (4) Æsthetic value, (5) Intellectual value. None of these is all-comprehensive and, indeed, it may be that all of them are not, but each will serve as an organizing idea for the work. A pedagogical question which arises is, which should come first, second, etc.? The interest of the child must determine this very largely. Perhaps, for young children, better and more varied results could be gotten from the Mytho-poetic standpoint. Perhaps, for the adolescent, the standpoint of Ethical values could be used most effectively. We see here how intricately related are all the problems and phases of pedagogy. To plan a course in Nature Study one not only needs to know nature as it is to-day, but also the cultural stages through which the race has passed and above all he needs to be a student of children. Whoever tries to solve this or any other pedagogical problem from the standpoint of some little phase of work in which he may have particular interest is more apt to go wrong

than right. The great text book of nature is open before us. In this, both the race and the child find their most primary and fundamental needs supplied, and their first and most abiding interest awakened. In the kindergarten and elementary school, when practicable, the care and culture of animals and plants should be the first aim; where this is not practicable, association and acquaintance with them should be encouraged. This study should constitute the very core and heart of elementary education and should be secondary to no other phase of work.

This is also the time to use Myth and Narrative History. For the child the world is shrouded in mystery and peopled with strange and unheard of beings. The mysterious appeals strongly to all, but especially to the child whose experience is limited and to whom the world is largely a mystery. Although his curiosity for meaning is intense, the world cannot be interpreted to him scientifically or philosophically. Myth offers a splendid opportunity for introducing him to many of the forces and passions, hopes and fears, victories and defeats that have made his world what it is. It should be taught as the counterpart of Nature study, the one introducing the child to life as it is found in plants and animals and the other introducing him to human life and spirit. Following close upon Myth or carried along with it, should come Narrative History—not the history grind but the historical story. Children have great delight in change, in movement, in events. This is especially true where the agents are human or where they are conceived as possessing or being ruled by spirit akin to human spirit. The child is not interested in the intricately complex principles and processes of modern society, but its interest in the simple and more tangible beginnings is absorbing. Any phase of history that can be subjected to the form of the simple narrative story is most excellent pabulum for the child at this time.

There remain to be discussed the subjects of Reading, Writing, and Arithmetic (the three R's) for children before their seventh or eighth year. To make more firm the ground on which deductions in regard to these subjects are to be based, let us notice some additional things that are true of the child and his development during this stage. In his address on Movement and Psychic Processes, Mosso (26) says: "In man the brain develops later than in all other animals, because his muscles also develop later. The striped muscles are more incomplete at birth in man than in any other animal. For this fact that the human brain develops so slowly, I am able to discover no other reason than this, that at birth the organs which effect movement over which the brain exercises its

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authority, are not yet complete. Modern views show a tendency to confirm what the great philosophers of Greece already recognized, viz., that children ought to begin to read and write only with the tenth year; that it is injurious for the development of the brain to be fettered to the school-desk when only five or six years old. Attention produces not only the same chemical effects and the same fatigue as muscular exertion does, but we feel also, when we are attentive to any thing, the characteristic muscular strain on the occiput, the forehead, and other parts of the body. The more mobile the extremities of an animal are, the more intelligent it is.

"The mutual relation of intelligence and movement is one of the most constant factors in nature, the movements always change where intelligence changes. Microcephalic individuals have an awkward gait, and an inconsiderable dexterity in the movement of the hands. This change is still more striking in the case of idiots. When the brain has been fatigued by exclusively intellectual activity, the sensitiveness of the hand and direct irritability of the muscles are also decreased. The influence of the hand upon the development of a language is evident from the fact that an aphasic patient is made to write in order that he may gradually regain the power of speech. The relation between muscular movements and conscious processes is so intimate that when the arms and hands of a hypnotized person are brought into certain positions, and certain muscles by external contact made to contract, certain emotions are induced corresponding to those muscular contractions."

But, as has already been noted, Ross, Bryan and Burk have shown that before seven or eight years of age, the child is to a high degree inaffective as a motor being. The work of Lukens and Barnes on Drawing as well as common observation by every one, re-enforces the thought. If there is then this close parallelism between movement on the one hand and psychic processes on the other, as is claimed by Mosso, it must follow that inasmuch as movements are spontaneous, unco-ordinated, and but slightly under the voluntary control of the child, so will its thoughts likewise be spontaneous, flitting and illogical; and this is exactly what we find in every-day observation. Dr. Vulpius has studied the fibers which horizontally traverse the surface of the hemispheres, which he calls the tangential fibers. These appear on the outer layer of the cortex in the fifth month of life; in the seventh month the tangential fibers can be found in the deep layers; while in the layer between, the cross fibers only appear after a year. In the child of eight, and even perhaps of seven years, the fibers of the cortex and medullary substances are complete in number and caliber, and have taken the same arrangement as in the

adult. It is during the development of the brain and nervous system before birth and during these first years of growth, that malnutrition and perverted action occur, which result in defective mental power." The point in this that needs to be emphasized here is the close relation between nervous nutrition and mental power. Neurologists and students of children's diseases all agree that up to seven or eight years of age is the period that brings out the effects of bad heredity due to the rapid rate of growth and instability of the organism. If, as Hurd says, in the process of education, energy designed to further the growth of the brain is dissipated in functional activity, hereditary tendencies to disease become thereby developed, or the development of the brain is limited and defects become evident which under more favorable circumstances would not have existed.

To summarize the foregoing, we have (1) a close relation between movement and intelligence. (2) The child's movements are unco-ordinated and spontaneous. (3) Therefore, the child's mental life at this time is apt to be spontaneous, flitting, and illogical. (4) The brain is developing primarily in growth and not in function. (5) We should, therefore, expect a very simple kind of mental life. (6) The necessity for brain nutrition and not brain functioning to bridge over the period when hereditary tendencies to disease are most apt to be developed. If these things are true a question for pedagogy to answer is, are reading, arithmetic and writing as daily assigned tasks, conducive to the best development and highest welfare of the child? Is the amount of information and so-called discipline derived from their study by children under eight years of age worth the cost? A comparison of the outlay with the income, compels the conclusion that they are not worth the cost. My reason for so answering is that work in these subjects flies directly into the face of the foregoing facts of child life and development during this stage. First let us notice reading in the light of the summarized statement of facts.

Perhaps no one who reads this will remember his own peculiar psychology when he learned to read his mother tongue, but most will remember how it was in learning a foreign language. Students of the French and German language find at first if they are very careful about their pronunciation they are apt to go over a page without extracting the thought, on the other hand they find that if they are anxious about the thought, their pronunciation is bad. Young men and women find it very difficult to get both faultless form and meaning until they have spent many years upon the language. And, yet, we require of the child with his simple undeveloped unco-ordinated, physical and mental life to perform an even more difficult task.

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Is there any one who does not remember what a fearfully difficult thing it was even to keep the place? But this is only one element in the child's difficulty; he must hold his book up, hold it open, keep the place, and by close attention and delicate adjustment of the eyes, he must decipher the characters in themselves and keep them related to each other and then we expect him to get the meaning and read with the spirit and understanding. The performance of such a task is not only injurious but in most cases impossible, and its requirement positively cruel. Such work should not be a fixed daily task of the child until there is a fair degree of muscular co-ordination and control, and mental strength commensurate to such physical development, and until the period for the cropping out of weak hereditary tendencies due to instability of organization and rapid growth is passed over, which would be at about the age of nine or ten. For essentially the same reasons work in arithmetic and penmanship should be taken up, if at all, only incidentally during this early stage.

Aside from the purely concrete number work, Arithmetic is sufficiently abstract and general to demand at least a fair degree of brain functioning and the ability to direct attention and to carry on in a simple way at least the processes of abstraction, association, and generalization. There is nothing in the physiology or psychology of development that indicates that the average child of seven or eight is capable of these things. By constant appeals to the child, together with scolding and threatening, a few arithmetical facts may be literally hammered into its head, but no one would ever guess that he could do anything worth while with these facts outside of the school room; on the contrary, every one who has given the matter even passing attention knows that he cannot. If the child should give all the time and energy that are worse than wasted on Arithmetic, to sensible work in Nature Study, Myth, and Narrative History, for which he has both an interest and ability, the world would be revealed to him in innumerable ways, learning would not be a drudgery and a bore, time would be found for the introduction of many kinds of work that have a real significance and value for him, and even more effective arithmetical knowledge and ability would be gained incidentally in connection with the subjects of vital interest and importance than are gained by the humdrum, formal study of the dry-as-dust arithmetic.

Reading and arithmetic should not be taught as formal subjects until the close of the transitional period which closes out the stage of childhood at about the age of nine or ten. The old conservatism which keeps us doing things simply because we have been doing them must be broken away from whenever there is ground for so doing, and especially when it is plain that

there is a better thing to do. When reading and arithmetic constituted almost the entire curriculum, child life and its development were not the criterion. Social rather than physiological and psychological facts were the determining factors. Professor Dewey (13) has well said that "The primary school grew practically out of the popular movement of the sixteenth century when along with the invention of printing and the growth of commerce it became a business necessity to know how to read, write and figure. The aim was distinctly a practical one; it was utility; getting command of these tools, the symbols of learning, not for the sake of learning, but because it gave access to careers in life otherwise closed." Neither should the social aspect of education to-day be ignored in the planning of school work, but it should not be emphasized to the hurt of the child. As was stated in the introduction, any attempt at curriculum making or educational procedure which does not take into account the laws and stages of development of the one to be taught, is apt to go wide of the mark and result in positive injury.

Conduct. In deducing some of the more general principles which underlie the conduct and moral training of the child up to seven years of age, we must here, as in its play and work, make our determinations from the standpoint of the child itself and not from the standpoint of the adult. Two points must be borne in mind. (1) Many things which would be grossly immoral for the adult have no moral significance whatever for the child. (2) The child's standard of morality, so far as he can be said to have a standard, does not come to him so much by intuition as by precept, and not so much by precept as by unconscious suggestion and imitation. The first point will be helpful in determining the content of morality for the child, and the second will serve as a guide in determining the method in moral training. Nothing could be more deadening to the development of the child than an attempt to make it conform in every way to the moral standard of the adult. Because the child appropriates at this age that which does not belong to it, it is not therefore a thief as its father would be under the same conditions. Because the child in the vividness of its imagination does not adhere strictly to the literal truth it is not therefore a liar. Because the child connives in every conceivable way to attain a desirable end, it is not therefore a trickster; and because the naked child, even at seven or eight, manifests no sense of shame, it is not therefore disgracefully immoral. From the standpoint of the adult these things would all be gross breaches of morality, while from the standpoint of the child they have but little or no moral significance. On the other hand there will come a time in the life of the child when these very things will have great moral significance, and the

pedagogical question which must be met is, what can be done for the child at this time which will result in a sense of right and wrong and a disposition to do the one and avoid the other, but which will not result in prudishness or a precocious and morbid sense of moral delinquency? Prudishness and moral morbidness, above all things else, must be avoided during these years. Better no sense of morality at all, than that the child of six or seven should either hold himself up as a bright and shining example of right conduct, or that he should magnify his childish mistakes into cardinal and unpardonable sins. Such moral attitudes are by far more hopeless, even, than almost any overt childish misdemeanor. It is not good for the child to be acutely conscious either of his goodness or his badness. His mind for most part should be, and under normal conditions will be, occupied with something other than self. It is in this connection that direct, positive, moral training at this time not only fails to accomplish desirable ends, but does positive harm; the child and his behavior are apt to be made the topic of discussion. For this reason, in all attempts to teach morals, an indirect method—the reading of a story, the relating of an incident, etc.,—is superior in every way to the more direct treatment, which should be held in reserve for special cases. We often teach the child to discern the right from the wrong, and admonish him to cleave to the one and forsake the other, only to find that as a result of our teaching, or in spite of it, the second state of that child is worse than the first. As a rule, the discriminations that he is capable of making are not effective in determining the course that he will pursue. Fine discriminations and admonitions are apt to be valuable in proportion to their scarcity. Nowhere in the development of the child do suggestion and imitation play so lasting and important a role as in the development of morals and conduct. As nothing helps the child so much in the acquisition and use of good language forms as saturation in good language forms, oral and written, so nothing will instill within him the habit of using pure rather than vulgar language so much as association with those who always use pure language. No amount of moralizing on the sinfulness of lying will help the child so much as living with people who always speak the truth; and nothing will more readily and effectively develop in the child a sense of personal and property rights than association with those who are careful to observe the rights of their fellows, and who do not appropriate to their own use that which does not belong to them. The first great concern of parents and teachers, who are interested in the morals of their children, should be their own behavior.

The moral ideal for the stage of childhood is innocence of right and wrong, morally considered. Every child knows that

there are some things that may be done and some that may not. This knowledge should come to him more as a matter of course. He soon learns to keep his hands out of the fire because he does n't like the result of putting them into it; and so he must early learn to desist from many things for the same simple reason that he does n't like the consequence; but he does not, neither can he look upon these things in themselves as right or wrong. I have known children to repeat the oaths of their elders with as little sense of guilt as if they were repeating the catechism, and in so doing they were not therefore immoral. The danger, however, is that having the language at their command, it will be but a short step to supply the content, which means profanity. Something should be done to prevent such results. Prohibition of the use of such language, with little or no emphasis upon the naughtiness of it, is the most rational and effective remedy. And so it is with the child's conduct in general. The experience of the parent and teacher must count for something, else what is the significance of parenthood or control in school? There will come a time when the child should be thrown upon his own responsibility—left more or less free to do as he desires, without let or hindrance, but not so now. Indeed, at the beginning of life, so far are we removed from the possibilities of such an ideal that implicit obedience should be insisted upon. Some one has wisely said: "If the child does not obey when first commanded he should be punished; but if the teacher even succeeds in securing obedience after he has commanded many times, he, and not the child, should be punished."

Teachers must know how demoralizing it is to keep nagging at children. They must also know that for many reasons there are some requests whose reasonableness cannot be explained to the child. In such cases implicit unquestioned obedience should be expected. The child with a healthy mind does not contemplate the wickedness of one possible line of action and the goodness of another possible line, and upon the basis of this discrimination determine his act. If he be a normal child, he does desist from doing certain things, because he has learned that these are things that must not be done, and he falls into the habit of letting them alone. On the other hand, if he be a normal child, he does certain things over and over again, until his habit of action begins to take form; and, so, the child should pass from his childhood into the early years of youth with the alphabets of moral habits pretty firmly fixed, but in no sense a contemplater of deeds.

Summary.

To summarize the stage of childhood briefly:

(1) There is here, as elsewhere, a close relation between physical movement and mental efficiency.

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(2) The child's physical movements are spontaneous, uncoordinated, and but slightly under voluntary control.

(3) Its mental movements are likewise spontaneous, flitting and illogical.

(4) The end of work is a definite product—physical or mental.

(5) This is the time of rapid nervous growth and great nervous instability.

(6) The brain approximates its full weight at seven or eight, at which time development turns more to function than to size.

(7) The child's mental life consists chiefly of percepts, reproduced images, and crude products of the imagination.

(8) This is the time when suggestion and imitation play their most important role.

(9) In general, for the child of this age, right is what he may do; wrong is what he may not do. He has but little notion of right and wrong in themselves.

Based upon the foregoing and their corollaries, the following deductions are made:

(1) The chief business of the child up to seven or eight should be growth; hence, nutrition in its widest sense is its greatest need. (2, 3, 5, above.)

(2) The child is incapable of producing effectively, and is apt to be permanently injured by trying to do so (2, 3, 5, above), hence, he finds his chief occupation in play rather than in work.

(3) The child should be required to do only those things for which he has a fair degree of efficiency (2, 4, 5, above), and for most part those things which appeal to him.

(4) The child is helped more through suggestion and imitation than by formal instruction. (7, 8, above.)

(5) Through suggestion and imitation his social and natural environment have great influence upon him. (8, above.)

(6) The aim of training at this time should be the production of the healthiest child possible, and not information. (1, 2, 3, 5, 6 above.)

(7) Some things besides play which appeal to the child at this time and which give him mental vigor, and at the same time do not interfere with his development, are Nature Study, Myth, Narrative History, Paper-cutting, Free-hand Drawing, and Singing.

(8) Arithmetic and reading require muscular and mental ability and control that the child has not yet attained, and should not be a part of the regular school work. (2, 3, 5, 6, 7, above.)

(9) Nothing has so great moral effect upon the child as the things he sees and hears. (8, above.)

(10) Unquestioned obedience to rational, intelligent authority

should be the principle in the management of young children, and freedom from this principle will increase with the development of the child.

In the negative discussion of reading and arithmetic for the stage of childhood, I have already anticipated some things which from the positive standpoint belong to the following stage. But before passing to this stage the transitional period which comes between these stages must be treated.

IV.

Transition from Childhood to Youth.

As has already been shown, the stages of infancy and childhood are ushered in by short transitional periods, which are both retrospective and prophetic. So, in passing from the stage of childhood to that of youth, at about the age of eight, there is a marked transition which carries into it and ofttimes through it, many of the characteristics of the preceding stage, and at the same time develops new features which are peculiar to the stage that follows. As in the other transitional periods, so here there can be drawn no hard and fast lines, but in general the time is between seven or eight years of age at the beginning and nine or ten at the close. Old things are passing away and new ones appearing.

At about seven or eight years of age the brain has approximated its full weight, and is changing in its development from increase in size to increase of function. Along with this there is also a change in the rate of bodily growth; so that the annual increase will be greater at the beginning of this stage than it has been through the stage of childhood.

The child is losing its first teeth and the permanent ones are coming. This more objective and superficial change seen in the case of the teeth has many physical and mental counterparts; the child is not quite at its best either physically or mentally.

Doubtless many of the disturbances of this time are due to bad nutrition which finds its cause in improper mastication of the food, the child having sometimes as many as three or four teeth out at a time.

This same thing is seen in many of the domestic animals, notably the horse which gets his second teeth at the age of four. Dealers in horses for the market will not buy under five years of age. Their stock remark is that a horse at four is no account. While this is not literally true, any one who has handled young horses knows that a four-year-old does not have either the endurance or trustworthiness of a three-year-old. Reggner (4) observed that young monkeys often sickened and died of fever when shedding their milk teeth, and the same process is cer-

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tainly not free from risk in the human subject. Nervous children often become emaciated during its progress, or suffer much from neuralgia or cough; and from having been hardy and robust, they become pale and delicate. Apparently in connection with it also complaints are sometimes made of headache, tenderness of the eyes, and lassitude.

At this period is encountered also that curious and sometimes puzzling perversion of the moral nature, known as malingering. From egotism and insatiable craving for notice and sympathy, from a desire to escape work, from jealousy, or from some more complex motive, the boy or girl simulates disease, and may do so with considerable ingenuity and success, or exaggerates some trifling ailment.

The disorder is generally poverty of the blood and nervousness, which not rarely are connected with constitutional changes associated with the second dentition.

There is a change in the vascular system at this time. Krohn has found that the child of eight fatigues much more easily than the one of six or seven or the one nine years of age. There is apt to be dilation of the heart and cardiac incompetence, such as shortness of breath and readiness of fatigue. The reason for the dilated heart at this time is the sudden increase in weight of the child without corresponding increase in size of heart muscle. The dilation or tendency to dilation and fatigue curves, represent the fact that the child must conserve its strength until its heart grows to its work. (9, p. 114.)

Dr. Christopher (10, pp. 330–331) says,—"We must recognize that the period from seven to nine years of age, quite irrespective of the other conditions of the life of the child, is one in which fatigue occurs very readily and is one in which damage to the heart is likely to be produced. This period in child life is one to which special attention should be called because of the extremely insidious character of its approach. It is not only in physical fatigue that it manifests itself, but in mental fatigue and in the exhibition of many nervous symptoms otherwise utterly unaccountable.

One of the commonest manifestations is the appearance of general laziness on the part of the child, and it is extremely common to conclude that the child needs more exercise. As a matter of course it is perfectly evident that, of all things, the child does not need more exercise at this period, but in every way its force should be conserved and its labors reduced to the smallest possible degree consistent with the maintenance of health. The duration of this period lasts occasionally a few months, although in a number of instances I have known it to last two years and even longer, during which time the child's failure to develop sufficient progress at school, and its manifest-

ations of unpleasant nervous symptoms have been the cause of great anxiety on the part of parents. It is clear that the school work during this period of life should be diminished to a point below that which has been done the previous year and which may be undertaken safely the next year."

The studies of Jastrow (21) indicate that at this time there is a transition, change or stage in the development of the special senses notably the sense of sight. The results of his investigations and observations show that children who have lost their sight before about seven years of age (the time coincides to the time for the approximate weight of the brain) do not have visual images, and, as a rule, those who lose their sight after this time do have. This, perhaps, does not point so much to a change in the development of the organ as it does to a central change. However this may be, it is significant as marking a time of transition in the course of development, and is fraught with great pedagogical value not only for those who teach all classes of blind, but also for those who teach normally developed people.

One of the most striking changes that occur at this time is to be seen in the entirely different nature of the somatic diseases preceding and following this period. As has been shown, during the stage of infancy from two to seven, is the time for infectious diseases, and in his treatise on The Diseases of Infancy and Childhood, Holt shows that after this time there is a transition from the infectious diseases of childhood to the diseases which are more often found in adults than in children. The change in nervous diseases at seven or eight indicates even more clearly than does the change in somatic diseases that this is a time of transition. Before this time which Clouston (11) designates as the period of most rapid brain growth, special sense education, motor co-ordinations, and speech, the prevailing nervous diseases are convulsions, squint, stammering, backwardness of speech, night terrors, infantile paralysis, tubercular meningitis, hydrocephalus and rickets. "Every one of these," he says, "can be connected with the immense brain growth of the period, with the development of certain essential brain functions at this time, such as speech equilibration, and the other essential muscular co-ordinations, with the intense trophic activity, and with the rapid metabolism of every tissue, with education of function of special sense organs and their brain centers."

The character of the nervous diseases which follow this short transitional period in most cases differs very greatly from that of the diseases preceding it. We have now, says Clouston (11), the period when muscular motion becomes co-ordinated fully with emotion, as seen specially in facial expression; and the nervous diseases which characterize the years from eight or nine

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to thirteen or fourteen are chorea, some cases of epilepsy and somnambulism, megrim, asthma, and some eye defects.

In this transitional period, at about eight years of age, there are as many striking indications of physical disturbance and readjustment as are found in the pubescent period with which all are acquainted, and about which so much has been written and spoken. I think there can be no doubt that if the period at eight carried with it any objective sign of the birth of a function so deep-seated and universal as is the sex function, it would not have been so long in receiving the attention due it. For in other ways the changes which occur at about eight are even more striking than those that occur at about thirteen.

As was said in the introduction of this topic, the life at this time is both retrospective and prophetic. We have both the traces of the stage preceding it and suggestions of the stage following. Part of the child's teeth are temporary and part of them are permanent; the child's brain, although it has approximated its growth in size, and is turning toward development of function, nevertheless continues to grow at a slow rate, and functions often inaccurately and with difficulty. The vascular system is as it was, while the muscular system has taken a sudden leap ahead, and the disproportion in the development of these two systems at this time results in cardiac incompetence and fatigue.

The somatic and nervous diseases are about evenly divided between those characteristic of the stage preceding and the one following.

There seems to be no abrupt change in the development of the senses at this time, and yet the period is significant, inasmuch as those who lose their sense of sight before this time are apt not to have visual images and those who lose their sense of hearing before this time are not apt to have auditory images.

This then is a time of readjustment in the vascular, muscular and nervous systems, and of great disturbance in the functions of circulation, digestion and nutrition. Coming at about the age of eight, when the child is apt to be in his third or fourth year of school, these facts are fraught with great pedagogical significance. It seems evident that the child is not capable of the same amount of physical and mental activity and endurance as he was at six or seven or as he will be at nine or ten, and this fact in itself would demand on the one hand a decrease in the amount of work required and on the other hand the provision of ample opportunities for pleasant recreation and amusement and quiet rest.

Dr. Jackson (4) says, referring to the disorders incidental to the second dentition, "The remedies which I have found most useful are as follows:—First, a relief from study or from regular tasks, yet using books so far as they afford agreeable occupation

and amusement. Second, exercise in the open air, preferring the mode most agreeable to the patient and in more grave cases the removal from the town to the country."

V.

YOUTH.

Although no two records on the growth of children coincide throughout, there seems to be in a general way agreement that at about eight or nine years of age there is a sudden increase followed by a slight decrease in annual increment until the time just preceding puberty. So far as is known there is nothing peculiar in the development of the nervous system at this time. There seems to be a steady development of its functioning power and a very slight increase in the weight of the brain. These years of slow growth from about nine to twelve or thirteen years mark a third definite stage in the development of the child. Both the physical and psychical life are unique and demand a unique pedagogy. The child is not simply his former self grown larger but he is in many ways an altogether different being. The transitional period from seven to nine has served to transform him not only nominally but actually from the stage of childhood to that of youth.

The chances for life are better now than they have been heretofore, the girls being least susceptible to disease at 11 (3.23 per 1000) and the boys at 12. (3.42 per 1000.) (17.) The somatic diseases to which the child is liable, while not peculiar to this stage, are almost entirely different from those of the stage preceding this; while the nervous diseases to which he is most liable are to a high degree peculiar to this stage. The heart muscle has increased in size proportionately to the size of the body and so fatigue is less easily induced than at the age of eight. "Sensation, special and common, and its organs have been developed; muscular co-ordination has progressed far; and many of the mental faculties, such as memory, fancy and emotion, have all acquired some strength, but muscular action has not been fully co-ordinated with feeling, and this is the period of life when this co-ordination takes place." (11.) This is the period of endurance and of co-ordination mental and physical, and mental with physical; the time for the storing up of reserve power and the establishment of automatisms—the essential forerunners of the reproductive function. It is the intermediate stage of life between the stages of greatest brain growth and of highest functional advance; between the pure gathering in of egoism and the appearance of the higher altruism. Above all things else this is the "laying up," the "salting down" stage of child life. . . . As be-

fore, let us consider this stage from the three-fold standpoint of play, work and conduct.

Play. In regard to the child's play at this time the principles recognized in the earlier stage should not be lost sight of here. It should be unhampered, spontaneous and careless of ends. But there are other elements entering now that were not present before. This is the time when the transition is made from the purely individual games and plays to the full fledged co-operative games. Every nine-year-old boy has his nine and eleven or belongs to the teams of some other boy. From the immediate artistic standpoint all such co-operative play is a failure, but its mental and physical significance to those who participate can hardly be gainsaid. At first the captain of a team will hardly be able to hold his men together long enough for a single game; a bruised finger, a bad start, an imaginary slight sustained by a prominent member of a team, and a multitude of equally trifling matters play havoc with the captain's organizing genius.

These things are not so true of the twelve-year-old team. Three years have served to work a transformation. Now teams are organized that remain intact all season—and so almost every town has its "North Enders," "South Enders," "West Siders" and "East Siders." Whereas the nine-year-olds hardly knew the "outs from the "ins," the twelve-year-olds know the game as well as the most inveterate "rooter." Furthermore they have attained the muscular strength and co-ordination to execute it. Hand in hand with this development of muscular strength and control have gone mental strength and control. So that the team hangs together after a half dozen crushing defeats. They do not disband because the pitcher has an off day or because the center rush fumbles. They have learned that to have one's own way absolutely in play means to play alone, and that team work means self-control in the highest sense. Aside from health, which should be the chief consideration, the great gains to be derived from play at this time are to be seen in the increased mental and physical control developed in co-operative games and plays. Along with this control and subjection of one's whims and caprices for the sake of the group there must be found the same spontaneity and freedom as characterized the stage up to seven. The chief difference lay in this, that whereas in the earlier stage the plea was made for the absolute freedom and spontaneity of the individual, here we must insist upon the same degree of freedom and spontaneity on the part of the group. There the individual quit playing with its doll and began playing with its toes at will. Here the group quits playing ball and begins playing war at will. There the child exercised the initiative in every particu-

lar. Here the group exercises this prerogative. There must, in the latter as in the former case, be absolute freedom from external control. Better that a team should disband a dozen times a day than that it should be organized by the captain's father and sustained through paternal compulsion. On the other hand, one of the things that every child must learn sooner or later is that if he is to live in society there are some things he may do and many things he may not do. One of the hardest lessons that a boy has to learn who moves from the country into the city is that he cannot throw stones in every direction. It is not easy for him to reconcile himself to the proposition that all his throwing must be straight up. But that is the price one must pay for social life. There is no place where this lesson can be taught so naturally and brought home to the child so forcibly and in a way that it will be accepted so readily as in its own co-operative games and plays. Thus unconsciously to the child and entirely incidentally has come to him one of the most essential and fundamental lessons of social life.

Conduct. In the following discussion of work for this stage, and of conduct for the previous stage, most things that bear upon conduct at this time are given. All of the principles suggested for the earlier stage should be observed here. But it must not be forgotten that the child's notion of right and wrong has developed *pari passu* with his physical and mental development. He should, therefore, be held responsible for his conduct in a way that heretofore would have been unjust. Insight and rational sympathy on the part of the teacher and parent are of the greatest importance. Judicious but close discipline should be exercised. While the fundamentals for work as suggested below are being drilled into the child at this time, it is just as necessary that the fundamentals in conduct should not be slighted. No task should be set that is too difficult for the child to perform, and no performance should be accepted that is not well done. Irremediable injury will come to the child who is allowed to roughly approximate a standard in work and conduct. Fairness should always characterize any requirement in conduct, and the child should be expected to fulfill this requirement promptly, fully and unequivocally. These are the years for discipline in conduct as well as in work.

Work. The stage from nine to thirteen differs from the one up to seven in that the earlier was pre-eminently the play stage while the later should be pre-eminently a work stage. It was found that before seven the child is not apt to have developed mental and physical control sufficient to enable him to produce effectively and that he is apt to be injured by trying to do so. After the transitional period, at about eight, the average child is found to possess sufficient strength and control in both these

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lines to produce effectively in various ways without endangering his health or development. It must never be lost sight of that an injudicious amount of work is to be avoided at all times.

This, then, is the time when the child should be initiated into hard work. It is a time, also, when his tissues, muscular and neural, are plastic and when he is largely exempt from disease. It is the time for drill, for practice, for discipline and even for drudgery. This is in no way contradictory to the doctrine of spontaneity advocated in the preceding period. The conditions of life that I have just enumerated show that the child does not now run the risk of arrested development that he has heretofore and there is one very important chapter of psychology that is too little considered in the discussions of the spontaneity and natural interest of the child. This is the dependence of interest upon attention. The emphasis is almost always placed upon the obverse proposition that children attend to whatever they have an interest in, but it is just as true that they are apt to become interested in whatever they attend to. Owing to the conditions of development, I should say for the stage up to seven, for most part let them attend to those things which attract them without assistance and for this stage let them attend to those things which serve as the alphabets of formal school work even though at times their interest in some lines must be induced by attention to them.

Many lines of work which the child was capable of pursuing only incidentally in the previous stage should now be taken up in earnest, while the things he has been doing he should in a degree continue to do.

Nature Study should not be supplanted by arithmetic, and the story will still have its place in the curriculum, but there will be readjustment of work so that the course will be strengthened by the addition of subjects. Reading should now be made one of the daily assigned tasks. The average child by this time possesses the mental and physical strength and control which will enable it to use the instruments of reading as a source of enjoyment and information without endangering its health and robbing it of time that could be much more profitably used in other ways. The child of nine or ten will not consume all its energy in holding the book open, keeping the place, and interpreting the thought. The end to be attained should be facility rather than ability to pronounce polysyllables. To this end there should be a well selected list of books treating of all subjects of human and especially of childish interest accessible to the child, and he should have perfect freedom in the selection of his reading material. A great amount of oral reading should be encouraged. Facility to catch the thought and to express it intelligently

must be sought. The aim should not be to develop critics but to master the subject as a tool; to become proficient in the use of it as a joiner is in the use of his chisel. It need hardly be said that the child's opportunity for such drill is not limited to his reading and story books, but that every book he uses, regardless of subject matter, serves equally as well. If the time given to reading before the child is seven years old were given to real things in which he has a lively interest, as was suggested in the discussion of work for that stage, it would bring such a fund of information and interest to its reading work at nine years of age that the problem of method in teaching reading would practically solve itself. It has been demonstrated over and over again that the way for an adult to get a working mastery of a language is to become absorbingly interested in the subject written in that language. And so it is with the child. If he can arrive at this stage with a first-hand knowledge of and interest in rivers and hills, flowers and trees, birds and bugs, animals and people of all sorts, reading will be a key whose use he will not be long in learning. Arithmetic should also cease to be only an incidental study and should become one of the regular studies of the programme. The child now possesses a fair degree of brain functioning power, and the ability to direct its attention and to carry on, in a simple way at least, the processes of abstraction, association and generalization. It also has physical development sufficient to use the materials of arithmetic to some purpose and without injury to itself. The aim at this time in arithmetic should be a mastery of the fundamentals; the establishment of the alphabets of arithmetic. For two reasons this should be done. There will never be a time when the child can do this kind of work better than he can now; and advance in the subject is absolutely hopeless without it. The child must learn to read and write numbers, whole numbers, fractions, decimals and denominate numbers. He must learn the addition and multiplication table until, shuffle it however you will, it will be as familiar to him as his own name. He must become thoroughly at home in the tables of denominate numbers. No effort should be made to put the child through the book or to make a mathematician of him. He should not be held so much for his method as for his work. He should not be held for the logic of his work but for the performance of it. He is not necessarily ignorant of his work because he cannot explain it. The aim in arithmetic at this stage should be *drill* upon the fundamentals until the child uses them with as much ease as he feeds himself. The foreign languages should be taken up at this time. Indeed, if the child is so fortunately situated as to hear these languages, or if skillful teachers can be secured, they may be taken up much earlier. (See p. 370.) But under no conditions should they be

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allowed to be deferred to a later time than this. Observation and testimony both show that seldom is a person who begins the study of a foreign language at a later stage entirely free from the accent peculiar to his own language and in every way as proficient as a native born. This is the time when children manufacture language; when they speak the so-called "pig latin;" when they distort their words and sentences; when they communicate in abbreviations; when they use secret language; when they begin to talk by gestures and use the deaf and dumb alphabet. It is the ripe time for the grafting on of new modes of expression. Furthermore, the wisest and most successful teachers of foreign languages advocate its study at this time, and some of them even earlier. As in the use of the reading and arithmetic book, so here the child is able to use the materials necessary for such study. The thing to be aimed at is facility. The conversational method should be insisted upon. Whoever cannot teach by this method should be considered unfit for the modern languages as one who does not know the multiplication table without the book is unfit to teach arithmetic. Correct forms should be insisted upon from the start. This end will not be attained so much through a grind upon technical grammar as by reading and hearing good forms and exercise in the use of them.

The ideal for the foreign languages at this time will be much as the ideal for the mother tongue was in the earlier stage and indeed as it is for most part in this stage. *Saturation in good forms both oral and written with perfect freedom of expression.*

The work in Nature Study will serve as the most natural introduction to the more formal study of geography. The child's interest in his natural environment will be extended to an interest in nature in general. Through his knowledge of and interest in the plants and animals of his own region he can easily be led into a study of the fauna and flora of different countries, and this will in its turn serve as an excellent introduction to the study of biology a little later. In the same way an interest in the mineral world will bring him naturally to the study of geology. The child knows that many things that he consumes in the way of food and clothing are not produced at home and he also knows from his previous work in Nature Study that these things have their origin in plants and animals. Here is an additional incentive to study the plants and animals of different regions but it serves its highest end as an introduction to the study of the two great geographical topics of commerce and manufacture. No more dreary task was ever assigned a child than the one of committing to memory outright all the agricultural and manufactured products of the different States in Asia or the imports and exports of Australia. And

no more valuable or absorbingly interesting piece of work can be undertaken than the tracing out of the processes that resulted in the shoes or the hat that he wears or the salt and pepper that he eats. Instead of getting a few isolated facts which are dismissed after the recitation for others just as valueless, the child would thus get things in their relations and the phases of original production, transportation and manufacture would signify something to him. Without any attempt at philosophizing, a thing to be studiously avoided at this time, a question which always arises in the mind of the child is,—"Why don't they raise pepper and cotton in New England?" "Why is the meat that I eat carried from the Mississippi Valley?" "How is it that the people in the plains and their neighbors on the mountain side produce such widely different things?" "Why is Vancouver so much warmer than Labrador?" It need hardly be said that such questions show that the time is ripe for the study of climatic conditions—the significance of altitude, latitude, ocean currents, relief, contour, movements of the earth, the change of seasons, and all the geographical conditions which make the products of one region differ so widely from those of another. The study of the relief of a country, its climate, etc., paves the way to a study of the geographical basis for the history work. Children at this age can be led to see and have great interest in seeing why, for example, Illinois does not extend a little farther west, Indiana a little farther south and Massachusetts a little farther east; that ancient Greece was not divided into more than twenty States through mere resolutions, and why modern Switzerland is divided up into twenty-six cantons.

It must be admitted that these suggestions do not at all times run parallel to the logic of the subject, but it must also be admitted that they do run parallel to good pedagogy and we care more for pedagogy than we do for a smooth running piece of logical machinery. The chief reason that geography has been a bore to students and a burden to teachers and a grief to pedagogues is, that we have been trying to organize it and present it logically, beginning with mathemathical, in which the child can possibly have no interest, and going from this through physical to political. If the wits of the pedagogic and scientific world were summoned to devise a more unpromising and fruitless scheme for geography work than the one of following out the logic of the subject, their work would surely result in unequivocal failure.

In the same way the history stories and the myth of the earlier stage bring the child naturally to the more careful and detailed study of history. The work at this time should be full of human interest. The time has not yet come for the more

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abstract study of treaties, constitutions and government documents. In the study of American history, the beginnings of our history appeal very strongly to children of this age. Well written stories of the voyages of Columbus; of the expeditions of Drake and De Soto; of the work of La Salle and Marquette; of the landing of the Pilgrims; of the founding of Jamestown and St. Augustine; the winning of the West; the stories of David Crockett, Daniel Boone, and George Rogers Clark have a very great fascination for the child at this age and will be retained with remarkable tenacity. This is the "blood and thunder" age of the child. He will follow out in detail the manœuvers of an army, the rough plan of a campaign, the results of battles with more delight and often with more accuracy than he will at a later stage. One reason why so much of the time given to wars by older students instead of to interpretation and historical documents on the ground that there is no time for the latter is, that the former were not taught when they should have beeu taught. Any normal child who has had rational training up to the age of ten will read the battles of the American Revolution from Lexington and Concord to Yorktown with approximately as much understanding and infinitely more pleasure and enthusiasm than he will at twenty. Only let the history be authentic and written decently, and do not piecemeal it but let it be read, a whole campaign or a whole war at a time. No wonder a child loses interest and enthusiasm when the lesson closes in the middle of a retreat and the child is punished for reading beyond the prescribed limits of the assignment.

Biography should constitute a large part of the history course at this time. The strong interest in human life and activity so characteristic of the earlier stage has not waned. A majority of our children come from the public schools after three or four years spent in the study of some text-book history without any very definite idea of any of it. If we would but take advantage of their normal interests and introduce them to the lives of the men and women who have made history, the results obtained would be more in proportion to the time and energy spent. It would be unwise perhaps to advocate biography exclusively for this stage but I have no doubt that if the average ten-year-old child could have access to the biographies of twenty of the most influential citizens of our country, representative of different times and movements, his real knowledge of our history would be as far in excess of what it usually is as a mountain exceeds a mole hill. In the life of Washington alone he would be introduced to colonial government, the French and Indian war, attempts at union, the colonial and continental congress, the various grievances of the colonies, the declaration of independence, government under the articles of confederation, the

revolutionary war, the adoption of the constitution, the birth of the government, the division of the people into parties, etc., etc. The aim must be to present the work in a connected form. It will be time enough to cross section it and bring together everything that happened everywhere in a given year after the children have the longitudinal lines laid. We must have the historical warp before we try to put in the historical woof.

Manual work adapted to the development of the child should constitute a regular part of the programme during this stage. Just what this work should be, external circumstances and the interest and ability of the child must determine, but in most cases drawing, carving and similar exercises requiring not too fine an adjustment of the muscles are desirable. And this is above all things the time for practice and drill in those lines of muscular activity that are to become habitual. The child who is to become an expert pianist, or violinist for example, should devote these years to laborious drill upon these instruments. Work in voice culture should be begun at this time, although judicious care needs to be exercised later when the voice is "changing" to prevent permanent injury. The one who is to have complete mastery of his body, of the physical movements, must not neglect the work in physical culture. There is no time in one's life when it is so true that "as you live now will determine how you will always live," as this time.

I have in the pedagogical discussions studiously avoided dogmatism. It would argue a lack of comprehension of the entire subject to say that at a given time such and such parts of such and such subjects and nothing else should be given. I have merely tried to show that many things the schools are trying to do at certain times are out of place and have tried to show what would be better. I have, therefore, in displacing some of the standard studies (reading, arithmetic, etc.,) before seven years of age suggested some lines of work that are suitable for this time without drawing a line between the things that must and the things that must not be done. Indeed I should be surprised if there are not many things unnoticed in that discussion that should have a place in the curriculum. The purpose was simply to work out the principle and illustrate rather fully. And so, in the discussion of work for this stage from nine to twelve or thirteen, it cannot be said what are all the things that may be done and all that may not. But I have taken up the subjects that were discarded in the previous stage and have tried to show that they should now have quite a prominent place in the curriculum, and have made suggestions as to the nature of all the work for the entire period without any attempt to go into details. The results of my observations and studies have led me to this conclusion in regard to the work

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for the two stages ending at seven or eight and twelve or thirteen respectively, that the work in the earlier stage as a rule is too heavy and that too much is expected of the child; and that the work of the later stage is too light and too little *required* of the child. I wish in conclusion to emphasize the fact that many of the fundamentals in training of all kinds can be gotten only through service, through long continued application and that there is no time in the life of the individual so well suited from the standpoints of mental capital and development, and physical capital and development to drill work as the years just preceding the dawn of adolescence.

I desire to express, here, my thanks to President G. Stanley Hall and Dr. William H. Burnham for valuable suggestions and criticisms, and to Mr. Louis N. Wilson, Librarian of Clark University, for his cordiality and help in securing literature upon the subject.

No attempt has been made in this paper to treat the adolescent period. For this the reader is referred to President G. Stanley Hall's forthcoming work on the subject.

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RECAPITULATION AND EDUCATION.[1]

By CEPHAS GUILLET.

"Do not train boys to learning by force or harshness; but direct them to it by what amuses their minds, so that you may be the better able to discover with accuracy the peculiar bent of the genius of each."—*Plato.*

CHAPTER I.

COMPARATIVE MORPHOGENESIS.

It is widely held by morphologists that the chief ontogenetic stages discovered by embryology tally more or less closely with the chief phylogenetic types revealed by the study of paleontology and comparative anatomy. It is the purpose of this chapter briefly to indicate some of the embryological evidence upon which this conclusion is based. A table is appended showing the parallel phylogenetic and ontogenetic development of man, so far as ascertained.

The first stage at which we know any animal is that of a single cell. represented phylogenetically by the protozoan. As to the first stages through which the human ovum passes, we have no direct evidence, no human embryo being known less than about two weeks old. But as the history of all other vertebrates is much the same during the first stages of development, and the earliest known human embryos are almost indistinguishable from those of the other vertebrates at certain periods, and especially of the higher vertebrates, we are not likely to go far astray in supplying the missing stages from them.

"All metazoa," says Balfour,[2] "originate from the coalescence of two cells. The coalesced product of these cells—the fertilized ovum—then undergoes a process known as segmentation, in the course of which it becomes divided in typical cases into a number of uniform cells." The ovum and sper-

[1] This article forms the concluding part of a work on Recapitulation, most of which was written by the writer while a fellow at Clark University. His heartiest thanks are due to the staff of the Psychological Department of that university, and particularly to President G. Stanley Hall, who suggested the subject, and under whose guidance and stimulating companionship the work was done.

[2] Balfour, F. M.: A Treatise on Comparative Embryology, 1885. This is true except in case of parthenogenetic development.

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metozoon Balfour regards as representing phylogenetically two physiologically differentiated forms of a protozoan; their coalescence was equivalent to conjugation: the subsequent segmentation of the fertilized ovum was the multiplication by division of the organism resulting from the conjugation; the resulting organisms remaining, however, united to form a fresh organism in a higher state of aggregation.

As a rule, a cavity soon appears in the center of the round mass of cells, which is then called a blastula. In the case of some lower aquatic animals, the blastulæ, says Hertwig, abandon the egg-envelopes, and, since their cylindrical cells develop cilia at the surface, swim about with rotary motion in the water as ciliate spheres or blastospheres.

Now by unequal growth and division of labor, two differentiated layers of cells always result in the form of a gastrula, if we follow Haeckel, Hertwig and others, or of a diblastula, following Lankester. According to the former, the simplest and most primitive form is that of the gastrula, formed by simple invagination; while, according to Lankester, it is that of the planula, or diblastula, formed by delamination, the mouth being secondarily acquired. The result, however, is the same. Balfour, while finding it impossible to decide which of these processes reproduces the mode of passage between the protozoa and the ancestral two-layered metozoa, considers the fact well established that the gastrula, however involved, was a primitive form of the metozoa; since this conclusion is founded upon the actual existence of adult gastrula forms, namely, hydrozoa, independently of their occurrence in development. The cavity of the gastrula, says Hertwig, is the primitive intestine (archenteron) opening to the outside through the primitive mouth (blastopore), which in vertebrated animals is only an evanescent structure. And so Balfour thinks it probable we may assert that the gastrula reproduces, with more or less fidelity, a stage in the evolution of the metozoa, permanent in the simpler hydrozoa, during which the organism was provided with (1) a fully developed digestive cavity, lined by the hypoblast, with digestive and assimilative functions, (2) an oral opening, and (3) a superficial epiblast (or ectoderm). Moreover, Hertwig says, that "larval forms at this stage in the case of many cœlenterata, echinodermata, vermes and brachiopoda, quit the egg-envelope to swim about in the water by means of their cilia; and they can now take nutritive substances—small infusoria, algae or remnants of larger animals—through the primitive mouth into the digestive cavity, and make use of them in the future growth of their bodies. Likewise, the substances which are not serviceable, because indigestible, are ejected from the body through the same orifice. In

the case of the higher animals, the ingestion of food is not only impossible at this time, but also superfluous, because the egg and the embryonic cells arising from it still contain yolk-granules, which are gradually consumed."

Without going into details regarding the formation of further layers, etc., we next find the embryo in an elongated bilateral stage. "Radial symmetry," says Marshall,[1] "seen in its most typical form in the gastrula, is confined to aquatic forms." From the changes that take place in turbellarian worms Marshall is led to infer "that bilateral animals are descended from radiate ancestors, that bilateral symmetry is something additional to and imposed on the radiate symmetry, and that this further modification is a direct consequence of the animals having exchanged their pelagic free-swimming habits for crawling ones; a change that would at once lead to the establishment of a difference, both structural and physiological, between the ventral and oral surface along which locomotion is effected and the opposite or dorsal surface; while the further differentiation between anterior and posterior ends would very soon follow as a necessary consequence of this same crawling habit."

Hertwig, describing the external form the embryo now assumes, says that "the embryonic area by means of the folding of its flattened layers into tubes forms the elongated fish-like body which all vertebrates at first exhibit." This fish-like or worm-like body comes to possess at about two weeks an intestinal canal with one anterior and one posterior opening in the ventral side; a neural tube (the rudiment of the central nervous system) which at first opens into the intestinal canal and soon becomes thickened at the anterior end; and a round chordal rod (found permanent in amphioxus) being the *Anlage* of the vertebral column. Several somites or myotomes are also visible and a rudimentary heart is present, while branchial clefts soon also appear. There is no trace of limbs during the first three weeks.

There is great difference of opinion among embryologists as to the significance of these changes. Dohrn interprets them as suggesting that an annelid form is a remote ancestor of the vertebrates, of which latter the ascidians are a degenerate offshoot. Semper, Poli and Minot support the annelid hypothesis; the last-named, however, regards the ascidians and amphioxus as derived from the annelids, not through the vertebrates, but through the hypothetical "atriozoa." Knowalewsky considers the ascidians in the direct line of descent with the amphioxus. Haeckel[2] holds that the flatworms, the ascidians (which he

[1] A. M. Marshall: Biological Lectures and Addresses, 1894.

[2] Ernst Haeckel: "Anthropogenie oder Entwickelungsgeschichte des Menschen, 4te. Aufgabe, 1891.

classes among the worms) and amphioxus are here suggested in order. Brooks[1] agrees only as far as to regard the appendicularia (an ascidian) as the nearest living representative of the common ancestor of ascidians and chordates. Balfour concludes that "the ancestral forms of the chordata must be supposed to have had a notochord as their sole axial skeleton, a ventral mouth, surrounded by suctorial structures, and very numerous gill-slits," and he regards amphioxus and the ascidians as degenerate offshoots of this stock. Finally Willey[2] comes to the following conclusion: "The proximate ancestor of the vertebrates was a free-swimming animal intermediate in organization between an ascidian tadpole and amphioxus, possessing the dorsal mouth, hypophysis, and restricted notochord of the former, and the myotomes, cœlomic epithelium, and straight alimentary canal of the latter. The ultimate or primordial ancestor of the vertebrates would, on the contrary, be a worm-like animal, whose organization was approximately on a level with that of the bilateral ancestors of the echinoderms."

If Brooks's view is correct, the early phylogenetic stages of development after our pelagic ancestors took to the sea-bottom were rapid. According to Fritz Müller, forms rapidly changing to other forms are less deeply imprinted in the ontogeny than those which lasted long. Besides, as Balfour points out, characters of any stage of the development which are of functional importance during a free but not during a fœtal existence will tend to disappear. It is no wonder, then, that the embryological history of vertebrates is very rapid and cursory in the early stages.

The next stage in the embryonic development of the vertebrates all embryologists agree in calling the fish stage, and of this we have very satisfactory evidence from the human embryo of about three weeks. The head is somewhat folded off from the body, and three swellings are present, representing fore, mid and hind brain; the gill-clefts are retained; rudiments of auditory, olfactory and visual organs appear as invaginations; four undifferentiated buds appear for limbs; a short tail is present, a bladder-like rudiment of lungs and rudiments of the liver and the other important internal organs. What we have is merely a higher vertebrated animal. Von Baer, Agassiz, Haeckel, Darwin, Huxley, Parker, Marshall, all agree as to the striking resemblance between the embryos of the mammal (including man), the reptile, the bird and the fish at this stage, the conclusion drawn ever since Darwin's "Origin of Species" being that the progenitor of the mammal, bird, reptile and fish had in

[1] W. K. Brooks: "The Genus Salpa," 1893.
[2] A. Willey: "Amphioxus and the Ancestry of the Vertebrates," 1894.

its adult state branchiæ, swim-bladder, four fin-like limbs and a tail, all fitted for aquatic life. Parker demonstrates such a relationship by a minute comparison of the mammalian embryonic skull and face with those of the shark and skate. According to Minot it is not until the fortieth day that the form is distinctly human.

The embryo now begins to lose the gills—which are converted into other organs—and develops lungs out of the pulmonary groove, by the lower end widening out and dividing into two forks or pouches; the branching of the lungs begins at about four weeks. The fin-like rudiments of limbs develop joints and become pentadactyl, but the fingers and toes are not separate from one another until the latter part of second month. This transition stage recalls the amphibia. "The primitive position of the limbs," says Minot,[1] "is at right angles to the body in a plane parallel with the longitudinal body-axis. The first change is the appearance of two bends which give the limb the position which is permanent in the amphibia;" and which is such that, "the ventral aspects of the forearms and lower legs come to look inwardly and their dorsal aspects outwardly, while the ventral aspects of the hands and feet look downward and their dorsal aspects upward. This change is obviously correlated with the change from aquatic to terrestrial life, and the consequent substitution of legs for fins." . . . . "The second step is the torsion of the limbs, which is similar in both pairs and occurs in all mammalia, the result of which is that the digits point headward, the first digit being in both hind and fore limbs turned toward the median line. This is the arrangement which is permanent n the reptilia and in the lower mammalia." This torsion takes place at the shoulder and hip. "The third change is the torsion of the upper arm by which the distal end of the humerus is turned over through an angle in man of nearly or quite 180°; by this torsion the head of the radius, which before the change was on the inner side of the arm, is brought across in front of the ulna to the outer side, with the result that if the hand is kept in its primitive position, palm down, the forearm is twisted in the reverse direction to the upper arm; this third change is accompanied by accessory modifications in the joints and muscles by which the radius becomes so movable that it can be employed to turn the hand with the palm either up (supination) or down (pronation.)" Rudiments of nails appear at the ends of the fingers and toes in the fœtus of 75 days; they are afterwards pushed up to the dorsal side. At four months, the spine of the fœtus still describes but a single, dorsally directed curve like that of the quadruped. In the

[1] C. S. Minot: "Human Embryology," New York, 1892, p. 452.

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fourth or fifth month, according to Wiedersheim,[1] the human embryo has a distinct *stratum corneum* with an epidermal layer outside it, which corresponds with the epitrichium of reptiles. This epitrichium layer appears in the third month, becomes horny and finally disappears from most parts of the body after the sixth month of embryonic life. Rudiments of hair appear at about three months; at the end of the fifth month the hairs begin to break through the integument, and in the sixth month the whole body of the embryo, except the volar and plantar surfaces of the hands and feet, the red edges of the lips and two or three other spots, is covered with abundant soft woolly hair, the "lanugo," which is normally shed before birth or immediately after, except on the face, and gradually replaced in certain parts by the coarse hairs characteristic of man. In this lanugo stage the embryo evidently repeats the lower mammalian stage, further evidence being furnished by the formation of mammary pits as in the monotremes, which give place to nipples, these being found alike in marsupials, lemurs, apes and man. The nipple does not usually become protuberant until after birth.

The child at birth is not yet structurally a human; he is even behind the ape in some important respects. For some time after its birth, to quote Turner,[2] the infant retains the quadrupedal character of the spinal curve in the dorso-lumbar region, and as it acquires nervous and muscular power and capability of independent movement, its mode of progression in the early months by creeping on hands and knees approximates to that of the quadruped. It is only after it has attained the age of from a year to 16 months that it can erect its trunk, completely extend the hip and knee joints (which even the Anthropoid ape cannot do) and draw the leg into line with the thigh so as to form a column of support, which enables it to stand and move about on two feet. The lumbar convexity of the chimpanzee at two years is greater than that of a child of the same age. The production of the cervical convexity precedes the formation of the lumbar curve, for an infant can raise its head and take notice of surrounding objects months before it can stand upon its feet.

Co-ordinate with the curvature of the spinal column, another great structural difference between man and the other mammals is found in the hand, which, from being a locomotive organ in mammals, and in addition, a prehensile organ in the apes, has become in man a highly developed manipula-

[1] R. Wiedersheim: "The Structure of Man" (English edition), London, 1895, p. 5.

[2] Sir Wm. Turner: "Some Distinctive Characters of Human Structure," Nature, 1897, pp. 425-435.

tive organ. Baker, Turner, and others, have demonstrated the adaptive structure of the human hand, which is capable not only, like the ape's hand, of grasping cylindrical objects, but also flat and spherical objects, and not only of opposing the thumb to the rest of the fingers in seizing an object, but also of opposing the thumb to each finger, and making delicate adjustments, while the fingers may be used independently of each other with considerable facility. This increased mobility and variety of action is brought about in two ways: first, by reducing the ape-muscles (especially the *palmaris longus*) used to assist prolonged grasp, they being no longer necessary to an organ meant for delicate work requiring constant re-adjustment; and second, by the development of new elements, and in particular a special flexor muscle for the thumb, which has been split off from the fibers of the deep flexor that bends the terminal joints of the fingers. In most apes the two form a single muscle, and in all, the thumb is but feebly developed. This special flexor muscle (the *opponens pollicis*) through its insertion into the shaft of the metacarpal bone of the thumb, draws the entire digit across the surface of the palm.

The orang, according to Turner, and the gibbon, according to Baker, have something corresponding to an imperfect opponens muscle in the foot also, but this is lacking in the other anthropoids, which are dependent, for the opposition of the great toe, upon the adductor and short flexor muscles. In the human foot (unlike the ape's) the hallux is tied to the second toe by a continuation of the same transverse connecting band which ties the smaller toes together; there is also no *opponens hallucis*, and the short flexor of the great toe is, in relation to the size of that digit, comparatively feeble, so that no special provision is made for a movement of opposition. The reason for this is that the human foot, relegating to the hand all functions of prehension, has taken over the whole task of locomotion, for which not precision and delicacy, but size, strength and firmness are required. The increased size of the muscular calf of the leg in man is another adaptation to the exclusive use of the feet as locomotive organs. The condition of the foot in the fœtus, and also for several weeks after birth, approaches that of the ape's, the joints being so arranged that the sole can be easily turned inward, presenting the "arboreal twist" of which Huxley used to speak.

To return to the hand, the fingers have in man each two separate flexor tendons that can act to a certain extent independently. To ensure their independence they are, at the wrist, says Baker, enclosed in a remarkable tubular conduit or subway, formed by soldering the palma fascia to the wrist-bones. This destroys any effective action on the fingers of the *palmaris*

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longus, which thus, from being a flexor of all the fingers together, becomes a flexor of the wrist. Baker calls attention to the interesting fact that in embryonic life all the muscles of the anterior part of the forearm are united in what is termed the pronato-flexor mass, recalling the original condition of musculature in the earliest animals possessing limbs.

The progressive development of the hand as a manipulative organ has brought with it changes in the arm and shoulders which are described by Baker[1] as follows: "Embryology teaches, that the humerus was formerly set so that the hollow of the elbow looked inward rather than forward, and it seems, therefore, that, as the functions of the limb became more various, the lower end of the bone gradually twisted outward around the long axis until its diameter described a considerable arc. This turned the hand with the palm to the front, extended its range and adapted it for a wider usefulness. As the torsion increased some provision became necessary for carrying the hand easily across the body to the mouth. This was effected by the inclination of the trochlear surface of the elbow-joint." Again, "many movements of the arm in man are produced by muscles acting upon the shoulder-blade or scapula. As the hand was turned outward and a wider range given, these movements increased in extent and importance, and the scapula accordingly widened out at its vertebral border in order to give a more extensive attachment for muscles. In order accurately to estimate this change, the ratio of the breadth to the length of the scapula is taken. This ratio, called the scapular index, is highest among the white races, less in the infant, in negroes and in Australians, and still less in Anthropoid apes. It is significant also that the vertebral border of the scapula is the last to form in the fœtus. We have, therefore, three modifications—the torsion of the humerus, the inclination of its trochlear surface, and the scapular index—all depending upon each other, all varying together *pari passu*, and all showing a progressive development both in the individual and the race."

Structural evolution has, however, by no means reached the highest possible point. While the erect posture itself is now fully attained by the white races, the adaptation to the erect posture is as yet far from complete. The pelvis, and the digestive and vascular systems offer abundant evidence of this fact.

It is an interesting fact that the fœtus in at least the early months of its life is a cold-blooded animal, and only gradually does it become warm-blooded[2]—in this respect also repeating

[1] F. Baker: "The Ascent of Man," Proc. Am. Ass. Adv. Sci., 1890, pp. 351-373.

[2] W. H. White: "Explanation of the Evolution of Warm-blooded Vertebrates," J. Anat. Phys., XXV (1891), pp. 374-385.

the racial history. The greatest care must be taken to keep prematurely-born children warm. The axillary temperature of a seven months child, says White, was 89.6° F; and even at birth at full time the temperature is only 94.5° F. Moreover the temperature of children, especially very young children, is not nearly so constant as that of adults.

Very early in embryonic life (about the second week) a neural groove (which soon closes into a tube) forms out of the dorsal ectoderm or outer layer of cells; just as in early phylogenetic development the central nervous system became differentiated from the epidermis and travelled inwards, retaining its connection with the sense-organs (of smell and sight and hearing) which gradually evolve from the epidermis, being at first, both phylogenetically and ontogenetically, simple invaginations or pits.[1] Invagination is, however, preceded by exvagination in the case of the vertebrate retina,[2] though not in the case of the lens, In the central nervous system there next follows, both ontogenetically and phylogenetically, the differentiation of the nervous matter into an external layer of fibers (white) and an inner layer of cells (gray). The nervous axis is divided into brain and spinal cord, and at about three weeks the brain in turn divides into two parts and then, by division of the foremost part, into 3 lobes, the fore,- mid- and hind-brain. These contain the principal centers for the co-ordination of sensation and movement. The hind-brain becomes converted into the cerebellum, pons and medulla; the mid-brain into the optic lobes (corpora quadrigemina) and the cruri cerebri. The mid-brain, Minot says, grows more slowly in mammals than in lower vertebrates, its importance diminishing as we ascend the vertebrate series; while the cerebral hemispheres grow more rapidly than any other part of the brain. These important organs, according to Minot, grow out of the fore-brain, beginning already in the third week, and growing out in front and then extending back over the fore-brain. The two lateral optic vesicles are already demarcated from the fore-brain. While the hemispheres are expanding, the olfactory plate acquires a more marked differentiation beneath them and shows traces of division into a dorsal or anterior and a ventral or posterior lobe.

Through the researches of Flechsig[3] on the progressive medul-

[1] *Cf.* F. M. Balfour: "Comparative Embryology," Vol. II.

[2] K. Schreiner: "Histologische Studien über die Augen der freilebenden marinen Borstenwürmer," Bergens Mus. Aarborg, 1897 (1898), 30 pp.

[3] Paul Flechsig: "Gehirn und Seele," 2nd ed., 1896; "Die Localization der geistigen Vorgänge insbesondere der Sinnesempfindungen des Menschen," 1896; "Ueber die Associationscentren des menschlichen Gehirns," Dritter internat. Kong. f. Psych. in München, 1896, pp. 49-68; Zur Anatomie des vorderen Sehhügels, des Cingulums, und der

lation of the nerve fibers, we now know that, while the spinal cord is functional quite early in fœtal development, namely, about the fifth month, and the lower parts of the brain have completed their development already at birth, the cerebral hemispheres, on the other hand, are at birth capable of functioning only to a limited extent, a few nerve-paths mediating sensations in certain of the sensory areas, while the association fibers between the various sensory areas of the cortex do not begin to function until a month after birth. The afferent or sensory fibers are always functional before the efferent or motor fibers in the cerebrum, while the reverse is the case in the spinal cord and medulla. The first sensory fibers to become mature (from the beginning of the ninth fœtal month on) are those that conduct organic sensations, namely, kinæsthetic sensations and sensations of hunger, thirst, discomfort, and also touch and temperature impressions from the skin. Part of the organic sensations are possibly mediated exclusively by lower parts of the brain, and in particular the cerebellum, which registers many kinæsthetic sensations, and the medulla which registers hunger, thirst and discomfort feelings. A monstrosity born with only the lower parts of the brain up to and including the lower part of the corpora quadrigemina yet gave forth many signs of discomfort. Its whimperings and the movements of the extremities became more vigorous when one pinched its skin. Children born before time cry out for the satisfaction of their bodily needs. Even expressions of pleasure or rather comfort are found in infants born at eight months, in whom the cerebral cortex shows nowhere any completely developed mature nerve-elements. About the end of the ninth month the olfactory tract contains medullary sheaths. The centers for taste are thought to be located either at the edge of the somæsthetic area or of the olfactory area. The optic nerve shows medullated fibers in the middle of the tenth month; but certain visual impressions are possible at nine months (birth). The fibers of the auditory tract are developed last of all the sensory nerves. The order of development of the sensations ontogenetically, therefore, is organic, tactile, chemical, visual and auditory, and this appears to be also the phylogenetic order. About a month after birth the association areas of the brain begin to become medullated (except the subangular gyrus which receives medullation earlier), but even at three months they are still very poor in medullation compared with the sensory-motor areas. But now numerous association fibers rapidly appear, starting from the other

Acusticusbahn," Neur. Cent., 1897, pp. 290-295. Ireland gives a summary of the two first named works in Jour. Ment. Sci., 1898, XLIV, pp. 1-17.

THE EVOLUTION OF MAN

According to the evidence of Comparative Anatomy, Paleontology and Embryology.

CHIEF PHYLOGENETIC TYPES.	FIRST APPEARANCE IN GEOLOGICAL TIME.	CHIEF ONTOGENETIC STAGES.
		Human Stage.
Man	Quaternary	Erect posture and lumbar convexity of the spine—manipulative hand—articulation — large and highly plastic brain.
		Imperfect Hand Stage.
Primate	[1] Miocene (of Tertiary)	Grasping objects with opposition of thumb in 4th post-natal month—medullation rapidly extending in the association areas of the brain from 4th month on,—attempts to assume erect posture in latter part of first year.
Lemur	Eocene (of Tertiary)	
		Early Mammalian Stages.
Insectivore	Juras (of Secondary)	Formation of mammary pits about 3rd fœtal month, followed by nipples, which protrude about time of birth–larungo begins to form about 4th fœtal mouth, shed about time of birth—only 2 curves in the spine at birth—association areas of brain beginning to function about end of first post-natal month.
Marsupial	Trias (of Secondary)	
Monotreme	[2] Trias (of Secoudary)	
		Early Air-breathing Stages.
Reptile	Permian (of Primary)	Reptilian torsion of the limbs—fingers and toes free (towards end of 2nd month)—nails begin to form (middle of 3rd month)—Reptilian epitrichium well marked in 3rd month, later becomes horny—a single dorsally-directed curve in the spine.
Amphibian	Carboniferous (of Primary)	Lungs being developed; limbs differentiated into fore and hind, and becoming jointed, pentadactyl and webbed(about the 5th fœtal week).
Dipnoan	Upper Silurian (of Primordial)	
		Water Vertebrate Stage.
Selachian	Upper Silurian (of Primordial)	Gills, swim-bladder, fore- mid- and hind-brain, then 4 fin-like rudiments of limbs (at about 3 weeks).
or Ganoid	Lower Silurian (of Primordial)	
		Early Bilateral Stage.
Amphioxus	[3] Cambrian of Primordial	Bilateral form assumed—intestinal canal—myotomes—neural tube with thickened cephalic end--notochord (at about 2 weeks).
Ascidian (Appendicularia), or Worm (Annelid)	Lower Cambrian of Primordial,	
		Radiate Stage.
Cœlenterate (Hydrozoan)	Lower Cambrian of Primordial,	Radiate form—stomach and mouth (*gastrula*).
(Larval invertebrate)	Lower Cambrian of Primordial,	Cell colony (*blastula*).
		Unicellular Stage.
Protozoan	Archæan	A single cell.

[1] Dr. Dubois has recently (1894) discovered in Pliocene volcanic deposits a new anthropoid form, which is described by O. C. Marsh as being "not human indeed, but in size, brain power, and erect posture, much nearer man than any animal hitherto discovered, living or extinct." Till this discovery no remains of apes had been found in deposits more recent than the Miocene. Others regard these remains as human.

[2] The Triassic Multituberculata are said to be intimately related to the existing Monotremata.

[3] C. D. Walcott concludes, from the finding of ichthyic fauna at the base of the Lower Silurian, that the differentiation of vertebrates and invertebrates must have begun in Cambrian time.

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centers and gradually connecting all parts of the brain together. In this connection a fact mentioned by Baker is interesting, namely, that in monkeys and the inferior races the ossification of the sutures commences at the anterior part of the head, while in Europeans these sutures are the last to close. This would indicate a greater and longer continued increase of the frontal lobes of the brain, which form one of Flechsig's association areas. And, in fact, the association areas in man form much the larger part of the cortex, whilst among the other mammals only in the higher catarhines do the association spheres even equal the sensory spheres in superficial area. The lower apes, even the baboons, show only little developed association centers, and in the lowest orders of mammals there are no such centers clearly marked.

CHAPTER II.

Comparative Psychogenesis.

The progressive steps in the physical development having been indicated, a brief summary and comparison will now be attempted of the evolution, in the child and in its animal ancestry, of each of the great instincts of life.

Hunger.

The hunger instinct shows a gradual but continual progress phylogenetically from the generalized state of the amoeba by the differentiation and improvement of senses, prehensile, digestive and locomotive organs and nervous mechanism. As a rule the invertebrates feel about for their prey aided by the tactile and chemical senses, the fishes actively pursue it, aided chiefly by sight and smell, the amphibia and reptiles stalk it, while the mammals combine hunting and stalking, the apes using the most varied and intelligent methods of procuring their food, both animal and vegetable.

Hunger is the all-absorbing instinct of the new-born child as of the more primitive animals, and its manifestations increase in variety with the unfolding of the senses, the muscles and the nerves. Both phylogenetically and ontogenetically the tactile and chemical senses are the first to be actively employed. The amoeba engulfs almost anything and everything of a suitable size that it touches. Tactile and prehensile organs are found in multitudinous forms throughout the animal scale from the pseudopodia of the amoeba and the oral tentacles of the polyp to the long flexible sensitive fingers of the tarsius and the chimpanzee with which they search in holes and crannies for eggs, insects and other toothsome morsels. The child will grope about with head and hands and finally with the index

finger alone. He will try to suck and swallow anything that touches the lips and cheek but soon begins the more active and successful digital explorations. The new-born child can distinguish between sweet and bitter tastes and soon learns the odor of milk. But, as with the animals so with the child, the chemical senses of taste and smell are not psychically distinct at first, and discriminability is slight. As the discriminability increases, the interest in new taste sensations becomes more marked; but the sense of smell never attains to that importance ontogenetically that it has phylogenetically, this sense being degenerate in man. The child of three months will try like the lower vertebrates to grasp objects with the mouth and chew them, while for the first year or so after he learns to grasp like the ape with the hand (several weeks later than with the mouth), everything that the hand seizes also goes to the mouth. L. Robinson[1] thinks that the infant's habit of picking up things and putting them into his mouth was at one time an important factor in determining survivorship. "In times of stress, when the hunters of the starving clan were scouring the country for prey, and the squaws were digging for roots in the forest, he busied himself in a profitable manner among the abundant debris on the floor of the cave, or experimented gastronomically with grubs, caterpillars, and other small deer, as he crept after his mother among the grass." This may account for the continuance of the habit into the second year. In the second month, if not earlier, the child begins to recognize food or the source of food by sight, a sense which, as in the animal scale, gradually becomes more and more important till the child like the ape depends mainly on its impressions in nutrition and forms many useful associations by its means. In the child's second and third years other interests rival and gradually subordinate those of taste, a process that takes place also in the animal series to a certain extent.

Self-Defence.

The skin of the new-born child like that of the very lowest animals is very sensitive to the contact of foreign bodies. The protozoan reacts to injurious stimuli by various contractile movements, such as shrinking, jerking back, and assuming a globular form, which presents the least possible surface to the injurious stimulus. Similar contractile phenomena in response to mechanical and thermal stimuli are observable in the new-born child, indeed in the fœtus. Fear in a rudimentary form seems to be an essential property of living matter. Consider the very words used to denote action in fear or expression of

[1] "The Primitive Child," N. A. Rev., 1894, Vol. CLIX, pp. 467-478.

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fear in all animals, and their connection with contractile phenomena of the skin and other parts of the body: *shrink, shudder, quake, quiver, twitch, writhe, palpitate.* G. S. Hall[1] is of opinion that the peculiar sensation induced by a minimal touch—what he calls knismesis—represents the generalized tactile sensations of primitive organisms, "the very oldest stratum of psychic life in the soul." There is considerable evidence that the skin of children during the first two years is much more sensitive than that of adults. On the other hand children during the first year seem to be less sensitive to pain than adults, which is probably paralleled by increasing sensitiveness to pain as the animal scale is ascended. The explanation is probably the same in both cases, viz., the relative lack of development of the nervous system in the more primitive and embryonic forms, which has as its concomitants imperfect powers of localization and concentration.

Muscular sensations, or sensations of position and movement probably come as early as tactile sensations, both phylogenetically and ontogenetically. The phenomenon of geotropism observed for example in the cœlenterate Beroë, and the function of equilibration mediated by muscle feeling and by the semicircular canals in vertebrates, are illustrations of the instinct to keep a certain fixed position relative to the center of gravity. All animals, naturally, must reckon with gravity and equilibration-organs are among the first sense-organs to be differentiated off from the general sensory surface. We find these first in the cœlenterates, but the cilia of many protozoa probably perform the same function as the sense-hairs of the otoliths or "statoliths," as Verworn prefers to call them. The existence of a fear of falling in the new-born child is evidenced by the discomfort he shows in certain positions, by his starts of fear when his equilibrium is suddenly disturbed and his signs of distress, in Robinson's experiments, when his grip begins to loosen. In the arboreal vertebrates, and especially the apes, which are continually confronted with the danger of falling, the instinctive dread of the same is very apparent in the caution which many of them exhibit in their climbing and leaping. The keen delight shown by children and apes when tossed up and caught is doubtless due to the presence of this spice of danger and fear. The new-born infant's capacity of supporting his own weight by holding on to a rod while his toes try to curl over anything graspable is interesting as the appearance at birth of a capacity formerly advantageous in enabling mother and infant the more readily to escape from their enemies. The flexed position of the thighs of new-born children and the position of

[1] *Am. Jour. Psy.*, 1897, IX, p. 12.

the feet which Espinas noticed in the second week turned flatwise toward each other is interesting in this connection as well as the fact noticed by him in his child on the fifth day, viz., that while no noise awakened him, yet calls with lip sounds made him shut his eyes; which may be the rudiment of a former prompt reaction to the mother's warning cry.

Sensibility to light is rare among the protozoa, but general among the metazoa. As a rule the lower animals prefer the dark, while the apes are almost without exception diurnal animals, and we have even some evidence that they are afraid of the dark. The child at first shuns strong light, but this, like many other early reactions, seems to be due rather to the delicate sensitiveness of the unaccustomed nerves than to a feeling of fear. He soon shows for it a strong interest, which seems very like fascination, due doubtless to the mixture of pain and consequent fear still present. This fascination for a bright light is quite prevalent among the vertebrated animals. Later on, some children show fear of the dark, but whether this is innate or due to suggestion does not appear.

The sense of hearing proper, appears to be developed late in the animal series, namely in the fishes, and even here but very imperfectly; but even lower metazoa can perceive shocks coming through a liquid or solid medium. The child also cannot hear for from one to seven days after birth, but during this time concussions seem to be perceived, as in the case of the fish, by organs other than the ears,—probably through the general sensory surface of the child's body. Loud noises have the effect of startling animals, causing them to twitch, shrink, etc., and the same is true of the new-born child. As soon as hearing proper developed, this sense appears to have been of use chiefly to warn of the approach of enemies. The amphibian, the reptile and the mammal, all show fear of unfamiliar sounds, a fear that is also generally intense in the child, especially during the first year.

The sudden appearance of an object startles a child sometimes as early as the second month. A sudden sight has the same effect on all vertebrates, and there are certain invertebrates that are startled by a sudden shadow or a flash of light. All vertebrates instinctively fear and avoid their enemies among the other animals. This may partly account for the presence of an instinctive fear commonly observed in little children, almost as soon as they can distinguish form,—of strangers, animals and objects which resemble animals such as fur, feathers, big teeth, machines, etc., especially if they move.

Fear of water is not observed phylogenetically till the apes, a few of which are unable to swim. Ontogenetically we have some doubtful early evidence of the fear of a touch of water but

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none of the sound and sight of it till the second year. This dread element has left a deep and lasting fear in the human organization which is readily accounted for by the fact that man has not been instinctively able to swim since the ape stage.

Caution and ingenuity in avoiding danger increase in variety and intelligence of manifestation alike phylogenetically from the water vertebrate stage on, and ontogenetically from the fourth month on. The child has already a little store of self-defensive associations by the time he is about a year old, when he begins also to use cunning in defending and aggrandizing himself. In this the eighteen months child, however, does not surpass the sly and watchful ape. There is no satisfactory evidence of a fear of death either in animals or in little children. There is some trace in the child's second year and later of an instinctive horror of uncleanness, which may be an inheritance from his animal and especially mammalian ancestry.

The home and migratory instincts, the instincts for seeking and retaining a congenial environment, are naturally possessed by all animals and also by the child from birth. Children get well orientated to their home surroundings by the latter part of the second year, at which time they begin to wander off into the streets, to the fields or to the water.

Play and Curiosity.

Animal play begins with seemingly aimless movements and antics. In the water-vertebrate stage a prominent direction given to play is hunting; while a new expression of well-being introduced with the fishes is the making of sounds. Curiosity is plainly exhibited by the fishes. The sports of the amphibia and reptiles—including their vocal exercises—are more diverse and their curiosity keener; and this development continues steadily in the highest order of animals, reaching its highest point in the restless and inquisitive apes.

The child's play begins with vague, tactile and muscular exercises of the limbs and features which are in constant movement. The slow rhythmical movements of flexion and extension of the fingers and the rotatory movements of the wrist common in the early months, Mumford regards as survivals of aquatic locomotion. In the second and third months movements of the trunk and head are prominent. The child tries to raise itself to a sitting posture at the end of the third month. In the third month, sometimes even in the second, begins random grasping at objects. The mouth is, however, the first prehensile organ ontogenetically as well as phylogenetically. Phylogenetically it was not till the air-breathing vertebrate stage that limbs were present and not till the hand-stage that the single hand was used to grasp an object, while only the higher apes oppose the

thumb. The thumb is opposed to the other fingers in grasping sometimes as early as the twelfth week and Preyer found that the thumb and great toe were able to hold anything put in the hand and foot respective at the end of the first week. It should be added that the child for some months will use feet as well as hands in feeling objects and the child born without arms learns to use his feet skillfully as hands. In the second quarter the child's head gets permanently balanced, he begins to sit alone, to move his body towards objects and to play with the things he is now able to grasp. The child is ambidextrous for the first half year at least and in most cases much longer. The apes appear to be all ambidextrous. The bilaterality of the movements of the child's limbs during the first few months is a repetition of the bilaterality of the lower vertebrates including the lower mammals. The child does not begin to use the hands independently of each other till the eighth or ninth month. Before this what one hand does the other also tends to do. In the second half year the lower limbs are constantly exercised while the child playfully learns to sit up without the aid of his hands, to roll, hitch and creep about, to stand and to stamp. In the third half year he at last learns to trot about on his feet (the instinct to do which is very early apparent) and he soon begins to extend this locomotive activity in many ways, turning, stepping over obstacles, stooping, jumping and climbing. Throwing—which no animal does instinctively and which only the ape can acquire, and that but imperfectly—is learned by the child in the second year, and much amusement is derived in the third year from watching where the things go and from throwing particular objects in particular ways, greater skill being continually desired and acquired.

Throughout this development of the child's muscles and senses through play, curiosity, as in the case of racial evolution, gain a continually increasing role. Notions of the external world are gained first of all through direct contact of objects with the lips, hands, and other parts of the body. But the eyes speedily assert their right to first place as the "windows of the soul." The child's first and almost immediate visual interest is for light and bright objects, then very soon for moving objects (which he begins to follow in the latter part of the month with the eyes and still earlier by moving the head) and then, from the second month on, with the aid of tactile and kinæsthetic sensations, for form, distance, and finally color; an order that is characteristic also of the philogenetic development of visual capacity and interest. It is pertinent in this connection to recall the exciting effect light has upon the most primitive vertebrate form still existing, the amphioxus, whose visual capacity only extends to the perception of light and shadow;

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and the fascination which a bright light or fire possesses for fish and snakes and many higher animals; also the attention that moving objects invariably awaken in vertebrate animals. Again the progress of vision from monocular to binocular runs parallel in the animal and the child. There is a steady progress from the fish whose eyes are placed far back on the sides of the head and command independent fields of vision, to the ape whose eyes are placed well forward and share the same visual field. This is repeated in the lateral position of the eyes in the human embryo (which come gradually to the front as embryonic development goes on) and in their more or less independent and unsymmetrical functioning in early infancy, co-ordination not being perfected till the second month or later. It appears also that the infant's eye can be accommodated at first only for rather near vision (objects not much more or less than about fifteen or twenty inches off) and that the range of clear vision gradually increases both phylogenetically from the fishes on and ontogenetically from the second month on. The apes, which alone among the lower animals are capable of binocular vision, yet possess the power of convergence but imperfectly. We have some evidence of the existence among vertebrates of an interest in color, but the matter has received little attention. As soon as he can distinguish form, the child's attention is constantly being caught and held by some new object. From the time he begins to hear, also, the infant takes a keen delight in sounds, and early divines the direction from which they proceed, turning his eyes thither, according to some observers, in the first month and the head as well in the second month or soon after. These associations are very imperfect, however, before the third or even fourth month. Among animals we find the lower air-breathing vertebrates, and especially the lizards and snakes, much attracted by novel objects and sounds; while with the mammals the sense of hearing is exceedingly sharp and the head and ear, which in the mammals alone are movable, are turned promptly and instinctively in the direction of a sound. The child does not usually distinguish persons by their voices till the fourth month or later. This capacity the mammals, even some of the most primitive, hold in common with the child. Musical sounds early have a pleasurable and stimulating effect upon the child as upon reptiles and mammals, while the ape and year old child are alike fond of a drumming noise. Progress in discrimination proceeds so fast that by the fourth month the child already distinguishes faces and takes a peculiar and growing interest in them. The ape also is very observant of faces and capable of discriminating people by voice and looks, and forms judgments about persons as the child does from the face, voice and manner. In the second

quarter the infant is fond of handling objects and is wide-awake to new sensations of touch, new sights and sounds, which he discriminates and recognizes and weaves together into a more and more intricate web of experience. He is no longer satisfied with seizing objects, but examines them and tries all manner of experiments with them, thus gaining a practical knowledge of the properties of matter. As he learns to creep and then to walk his opportunities of exercising muscle and sense enlarge, and his curiosity seems to grow more eager as the means of feeding it multiply. He carries on ceaseless investigations, and his chief delight is in objects that he can do something with; these he handles and makes to move in all sorts of ways.

So, phylogenetically, the mammal, aided by its improved senses and locomotive capacities, displays its more intense life in its playful activity and restless curiosity. The primitive mammals tumble about in the water, chase one another, and scuffle together, uttering their cries the while; and some of them display a prying disposition. But not till we reach the hand-animals do we find that habit of minute and systematic investigation so characteristic of the wonderfully observant and inquisitive ape. Likewise the sports of the ape bear a striking resemblance to those of the child. They consist of grasping, climbing, swinging, dancing, jumping, turning somersaults, screaming, drumming, scuffling, rolling, chasing, racing, riding, nursing and fussing with little animals (compare the child's passion for little animals and dolls), pretending to bite, teasing and playing tricks, destroying things, making experiments, overcoming difficulties, splashing about in the bath-tub, playing with fire and with bright objects and with other toys, making things move by striking or throwing.

The imitative instinct—so prominent in the ape also—is an additional impetus to the child's sportive activities particularly noticeable from the ninth month on; and the dramatic instinct begins to add its charm to the child's play in the second year. Animals and representations of animals are especially liked by the child in the second half year, and all kinds of moving objects together with the more striking aspects or phenomena of nature (the red sunset, thunder and lightning, the moon, the stars, bodies of water) arouse strong interest in the second half year and still more in the second year. Like the child the ape is also keenly interested in animals and it likes to look at bright colored pictures and representations of animals, which latter it often mistakes for real, showing that it resembles the child also in the precedence that sight takes of smell. There is, again, some evidence that such natural phenomena as storms, sunset, and sea arouse in the hand-animal an interest approaching the wonder of the child. There is a subtle connection between

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dread and liking, for no objects interest child and animal alike more than objects that are commonly objects of fear or that have already been such to the individual concerned. In the invention of expedients, in experimentation, and in the use of the method of trial and error in the latter part of the first year, the child shows considerable intelligence and judgment, being surpassed only by the most intelligent apes, namely the anthropoids, the guenon and possibly the capuchin, which he overtakes in the second year. It is significant that the child in the latter part of the first year, when placed in front of a mirror, reacts exactly like the ape, grasping at the image at first and later making a sudden grasp or taking a sudden look behind the mirror which he brings slowly towards him. The child in the first half of the second year finally recognizes himself in the glass and distinguishes himself from his own image, while the ape apparently never ceases to think that the reflection he sees is another living monkey.

In the second year, being able to move about more freely, the child begins eagerly to seek the origin and the cause of sounds—a characteristic also of the ape. In the second and third year the child is increasingly inquisitive with regard to the meaning and purpose of the things he sees. The ape shows by its actions a curiosity as active perhaps as that of a child in the middle of its second year, though the ape is not capable, like the child, of communicating in words its desire for knowledge, nor has it that capacity of understanding language which conditions the child's rapid advance in knowledge. The ape's capacity for understanding speech never takes him beyond the point reached by the child at the end of his first year, and being incapable of articulating he cannot learn even to name objects. The power to name objects adds greatly to the child's interest in them. He is quick to perceive resemblances and divides the world up into classes which grow ever narrower as new points of differentiation are observed. The child's crude reasoning in the second and third years is but another simple form of grouping by objective resemblance or contiguity, and is found quite as well developrd in the ape as in the two-year-old child.

Darwin and others assert that the ape sometimes emits a rudimentary kind of laugh when pleased. The child laughs in the second month and sometimes earlier, being particularly amused by rapid movements, while he exhibits roguishness and a sense of the grotesque early in the second year. This sense is apparently shared by the orang. The child distinguishes between greater and less in quantity or size in the first year, between one and many in the second year, and in the third has not only an idea of series but has distinct conceptions of several

of the numbers, viz., one, two, and sometimes three, and may with pains be trained to still further knowledge of number. The ape is probably incapable of acquiring a conception of number. It is not till the third year that the child gives evidence of an understanding of the divisions of time, a knowledge that the ape can hardly attain to. Animals and little children alike have no thought of death, and the conception of death is one peculiarly difficult to convey to the child. By the middle of the second year, or at the latest by the beginning of the third year, the child has evidently come to clear consciousness of self as a unit distinct from the outside world which he has built up around him as his senses have developed. The interest in self is first plainly noticeable in the fourth month when the child spends much time in feeling himself and looking at his hands and feet. Then comes interest in the sounds that he makes and pride in the things that he does. With the acquisition of language this feeling of self naturally grows rapidly. The growth of the consciousness of self is also largely conditioned by the development of the child's feelings. The sensitive child is earlier self-conscious than the less impressionable. The fact that no animal, not even the sensitive ape, gives any evidence of shyness, inclines one to believe that the animals never attain to that degree of self-consciousness often reached by the child already in his second year.

Self Assertion.

In every expression of life there are probably two factors at work, the inner effort or reaction and the outer resistance or stimulus. What we call will is the predominance of the inner factor as compared with the influence of the outer. This inner force is seen to grow in strength, to become more prominent and more seemingly independent of outer forces, both phylogenetically as we ascend the animal scale and ontogenetically with the growing child. The reaction of protozoa and cœlenterates may be readily controlled by the use of various simple stimuli. The frog's reactions cannot be so readily predicted, while the ape's will is still much more developed in strength and complexity. Thus also does the child's grow from its almost passive and mechanical condition at birth to its vigorous initiative in the well-developed child of two years.

The invertebrates that we have considered as nearest the line of man's descent, when attacked, almost without exception, timidly seek to elude the enemy, and do not assume the offensive. With the development of a backbone, self assertion and anger become prominent qualities. Even the form of self assertion known as jealousy makes its appearance in the aquatic vertebrate stage, and the fishes energetically defend their prop-

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erty rights in food, home, mate and young. The expression of anger is much more diverse among the amphibia and reptiles than among the fishes. We find not only color-changes, sparkling of eyes, erection of appendages and inflation, as among the fish, but also sweating, foaming and the like, snapping of the jaws and, above all, rapid respiration with the utterance of various sounds. We have some interesting accounts of tyranny exerted by reptiles, especially lizards and snakes, over their fellows,. A new kind of jealousy is exhibited by the tame lizard which is jealous of attentions paid by its master to its companion lizards. But it is among the mammals that the self assertive instinct is most intense and it is among the apes in particular that its manifestations are most numerous and varied. Jealousy, teasing, tyranny, revenge, sensitiveness to ridicule, vanity, pettishness, contrariness, and impudence are characteristic of the apes, while the means of expressing anger have correspondingly multiplied, being as complex in the ape as in the year old child. In the hand-animals, too, the property instinct and the collecting instinct are strongly developed, for the apes are exceeding fond of stealing and accumulating and jealously defend their property.

The expression of angry impatience by the child is not for some time certainly distinguishable from a simple expression of pain or discomfort by crying, sputtering, wrinkling the face and shutting the eyes. But the loudness of the outcry a few days after birth, when his wants are not met, leaves little doubt in the mind. In the second month rigidity of the body accompanies violent crying. At three months the child will already ward off annoyance by the energetic use of his hands. As early as the fourth month the child has been observed to flush from anger, also to grunt, frown and twist about when uncomfortable. By the time he is one year old he will butt, scratch and bite the objects of his rage and also beat them, using first the open hand and latter (*e. g.* sixteenth month) the fist. He will also make vigorous movements of the whole body when in a passion, throwing himself about and striking out with hands and feet. When able to walk, he will give vent to his displeasure by stamping (*e. g.* 20th month). Finally, in the third year, weapons are thrown in anger.

In proportion as the child develops strength he becomes more energetic and self-willed, hating to be crossed in his little endeavors and using his nascent capacities with more and more confidence and determination. He also takes an increasing delight and pride in his achievements from the fourth month on. The instinct to show off makes its appearance about the middle of the first year or a little later. In the second year anything forbidden possesses an especial fascination, anything

recommended provokes distaste, and towards the end of the year compromises are suggested. Moreover, with the heightened self-consciousness so plainly exhibited about the end of the second year comes dignity, self-respect, and a sensitiveness to ridicule. In the third year selfhood is still more strongly manifested: the child begins to show independence of thought and action, and rebellion and wantonness are very common.

The self assertive instinct takes the form of jealousy as soon as the child is able to distinguish people. The teasing propensity appears rather early in the second year and soon becomes very strong; while in the latter part of the second year the child begins to take pleasure in exercising authority over other little children and over animals and dolls, which he sometimes uses badly.

Both in racial and in individual evolution the first property is food. When, in the fourth month, the child comes to recognize mother and nurse as the source of food and loving care, they also are jealously regarded in the light of property. Somewhat later, as the power to grasp objects becomes perfected, the child begins to regard the things he lays hold of as his own and to resent interference with them. Early in the second year he begins to show thieving propensities which he finds it hard to master. Not till about the middle of the second year, with the strengthening of his social instincts, does the child begin to have regard for the property rights of others. We have evidence of the appearance in the third year of the collecting instinct, which is an interesting outcrop of the instinct for property.

Social Instincts.

As in the protozoan so in the new-born child the social instinct appears as an outgrowth of the self-seeking instincts of hunger and self defence, and the history of life, both individual and racial, is a history of the growth at once of individuality and co-operation. We have some evidence of imitation and communication in the fish, and these instincts expand rapidly in the succeeding stages, especially in the mammalian, the social stages *par excellence*. In the primitive mammals the teaching instinct makes its appearance as an outgrowth of the now highly developed parental instinct, and with its appearance the activities become more intelligent and less purely instinctive. On the other hand the filial and imitative instincts become likewise very prominent as well as the instincts of communication, notably between parent and young, when danger threatens, by cries of warning and appeal. The voice becomes more prominent in the mammalian stages as a means of communication, though gestures, movements, and postures are also found, espe-

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cially among the hand-animals. The capacity of forming friendships with other animals and with man, noticeable already in the early vertebrate stages, especially the early air-breathing stage, develops rapidly in the mammalian stages, and, like the other instincts, culminates in the hand-animals, which delight to use their arms and hands in nursing and fondling other little mammals, including children, and display great affection and sympathy for their friends.

The child is by nature very sociable from the beginning. He early displays the propensity to imitate (third quarter) and still earlier the finer capacity of suggestibility (fourth month or even much earlier) and in this he resembles the apes, which also are very imitative and very susceptible to facial and vocal expression. The simpler instinctive means of communication are most common during the first year, such as various cries of appeal which appear to become intentional already in the early weeks, the smile of sympathy and sounds of pleasure, which begin in the second month, various gestures as stretching out the arms and turning away the head, the latter in the fourth month, and interjectional sounds. By the end of the first year, the child's instinctive means of expression have developed so far as to equal those of the ape, except in the case of the social emotions, such as pity and grief, which are not so deep in the child as in the adult ape. Few new means of expression are added after this: the closing of the fist and the use of weapons in anger are instances, and these are not instinctively employed by the apes. The child's ability to understand human speech equals that of any animal by the end of the first year. In the fourth quarter the child may begin to use words and by the end of the fifth quarter—in some cases a little later—he has got by invention and imitation a small but useful vocabulary. By the end of the second year the child has generally gained a fair linguistic command of his little environment and possesses a great variety of means for expressing his wants and sentiments.

The child early smiles in answer to kindly looks and gentle sounds, and even in the second month smiling would seem to be sometimes an expression of fond interest. In the fourth month the expression of affection and sympathy, now no longer dubious, begins to be more active and complex, and in the second year—sometimes earlier—the child expresses his love by many overt acts, such as kissing, hugging and caressing and (in the latter part of the year) sharing his pleasures. The child like the ape is very sensitive to cross and mournful tones and looks, showing this sometimes as early as the fourth month; while pity would seem to be felt almost as early, and is readily excited in the year old child, as, indeed, it also is in the ape. In the latter part

of the second year the child becomes, like the ape, not only very fond of, but also tender towards babies and little animals, with whose nature his own is so much akin. In weakness and capriciousness of will as well as educability in self-control by appeals to the instincts, the child in the second half-year is strikingly similar to the ape, but less and less so in the second year. With the somewhat complex relations of the higher animal societies and with the performance of brave and helpful deeds under the impulse of the social instincts, there would seem to develop in the higher mammals a feeling of what is fitting and what is unseemly, and this feeling is susceptible of considerable training through appeals to the animal's instincts. The child is so early subjected to training that it is hard to distinguish in his actions the instinctive and the acquired. His instinctive sympathy, however, which may be so early aroused for his friends, is already widely extended in the first part of the second year, when he feels with any sufferer, while shame may be felt as early as the ninth month. At the same time we find in him as in the ape many a conflict between the as yet very imperfect social instinct and the more selfish instincts of hunger and self assertion. The finer exhibitions of altruistic behavior in animals are irradiations of the sexual and parental instincts, and similarly in children it is not until adolescence that altruistic feelings and aspirations take on the glow of conviction and enthusiasm.

Blossoming Periods.

Three epochs in the growth of the child stand out prominently in the first year, namely the fifth week, the fourth month and the ninth month. These are turning points or rather blossoming periods in the child's history.

Before birth there are probably no senses awake but the tactile and kinæsthetic; the fœtus does not taste, smell, see or hear. It may have vague sensations of self and certainly in so constant and uniform a medium its sensations (tactile and thermal) of environment must be still vaguer. The sucking, swallowing, and clasping reflexes are present at birth. During the first month of post-natal life the child is occupied with feeding and sleeping and with a spontaneous and very indefinite play of the senses and muscles. He makes a certain number of adaptive movements, however, in connection with the hunger instinct, being guided by touch and temperature, by taste and smell and, though later and more imperfectly than in the case of these other senses, by sight. The instinct of self-defence is also at once apparent in the infant's reactions to mechanical and thermal stimuli (tickling, pressure, cold), to loss of equilibrium, to strong light and to loud or sudden sounds. The child

takes pleasure in warm air and a warm bath, in the touch of soft warm objects, soothing sounds and mild light. Bright and moving objects arouse his curiosity and, if moved slowly in a horizontal direction, may be followed by the end of the month through movements of the head and eyes. The child expresses hunger, discomfort, and displeasure by screaming, frowning, shutting the eyes and moving the limbs energetically; comfort by smiling; and fear by trembling, shrinking and starting.

The fifth week is important, as the time when the child becomes able to perceive form. This new capacity nourishes the instinct of curiosity and from now on the visual sense of form occupies a large place in the child's associative activity. During the second and third months the child is vaguely sharpening his tools and forming certain simple but important associations. Interest in objects will now cause the child to cease crying and stimulates him to reach out and try to grasp them; he thus builds up notions of space. The range of sight and the interest in sounds alike steadily increase and the association between eye-movements and hearing is formed by the fourth month. Even before the fourth month the child plainly shows that he has began to store up memories. The expressions of pleasure in particular multiply in the second and third months, as we now find laughter and the utterance of various cooing and jubilant sounds; while in painful states tears are shed, and, later, sobs are uttered.

In the fourth month we find many phenomena appearing, often with striking suddenness and evidencing an awakening mind. There is the power of control shown by his successful efforts to grasp objects and to carry the hand to and from the mouth at will. There is the intelligent observation of his surroundings seen in the discrimination of faces, in the recognition of friends by their faces and voices, and now, or soon after, in the associations he forms between objects and sounds as words to indicate the objects. Animals begin to be feared, friends in a strange garb are taken for strangers and feared, and the child begins to learn caution from experience. Then begins also the interest in self, in feeling his body, in looking at his hands and feet, in listening to the sounds he makes and rejoicing in the things he succeeds in doing. Now also his smile is plainly intelligent and unmistakably expressive of fellow-feeling, and he is sensitive to scolding and other ways of expressing feeling with regard to him. At the same time he displays his self-assertive instinct in jealousy, in gestures of refusal and in the flush of anger.

During the fœtal existence and the first month after birth the child would appear to be recapitulating the invertebrate and cold-blooded vertebrate stages; and during the second and third

months, the early mammalian stages. In the fourth month, anatomically (in nervous skeletal, and muscular development), and psychically, he enters the higher mammalian stage represented by the ape, in which stage he remains for some months. During these next few months the child makes rapid progress in building up definite objects out of his sense-impressions, his space-judgments rapidly increase and improve, he gains considerable control of the muscles of the upper limbs in handling objects, and succeeds in sitting up and moving about.

In the ninth month he is seen to have attained such control of his muscles that he is now able to use the hands separately for different purposes at the same time, and deliberately to do many things that he sees or hears others do. From the ninth month on his powers of attention and imitation grow so rapidly that by the end of the year he is more educable than any animal. It is significant that deliberate efforts to talk and to walk upright—characteristics of a stage more advanced than the ape represents—begin commonly in the fourth quarter and progress together. The child's further intellectual progress is conditioned largely by his power of speech, a means of progress that the ape lacks. The ape-like creature in man's direct line of descent must have also possessed at least potentially the capacity of articulation. The potential capacity for the habit of bipedal locomotion is sufficiently indicated not only in the apes but, to a less extent, in many other mammals and even in reptiles. In the fourth quarter, then, or at latest in the fifth, the child enters upon a heredity higher than is represented by any animal with which we are acquainted. Still, while in the use and understanding of speech, in the expression of most of the emotions, in self-consciousness, in suggestibility and educability the year old child is the equal of the ape, on the other hand, in many expressions of the self-assertive and social instincts, in play-activities (but not in imaginative play), in the memory of persons and events of interest, in curiosity and cunning, in judgment and reasoning, the most intelligent apes may be compared to a certain extent with the child throughout his second year. It is probably during the second year in the main that the child repeats the history of the stages intermediate between what I have called the imperfect hand stage and the stage of primitive man. The child's intelligent use of tools and weapons during this year would seem to bear this out, as well as his growing consciousness of self. In the third year the child shows capacities that are probably purely human, as, for example, his conception of number and time, his powers of imagination, his ability to think in language and to reproduce his mental images in drawings.

In the present state of our knowledge it has been possible to

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indicate only the larger features and a few scattered details of the parallelism between the psychical evolution of animals and the growth of the child-mind. A minuter statement must await fuller investigations. Each one of the topics brought forward well deserves special treatment in a monograph after careful observation and experiment with both animals and children. This much is, however, sufficiently evident, namely, that the evolution of instinct like the evolution of its concomitant, structure, follows the same lines of increasing differentiation and complexity and the conquest of an ever wider environment in the child as in the animal series.

CHAPTER III.

RECAPITULATION AND VARIATION PEDAGOGICALLY CONSIDERED.

We naturally inquire the explanation of the facts of which the recapitulation theory is a statement. It has been held true, as regards physical form, by scientists, such as Von Bär and Agassiz, who either did not know or did not believe in what we now call evolution, but who saw in it simply an expression of the will and design of the Great Spirit. Charles Darwin seems to have been the first to put forward a natural explanation, namely, in his law of variation and inheritance. "At whatever period of life a new character first appears," says Darwin, "it generally remains latent in the offspring until a corresponding age is attained, and then is developed. When this rule fails, the child generally exhibits the character at an earlier period than the parent." Hertwig and Wilson have since demonstrated that organs of great physiological importance, as, for example, the central nervous system, tend in general to appear earlier. "On this principle of inheritance at corresponding periods," continues Darwin, "we can understand how it is that most animals display from the germ to maturity such a marvellous succession of characters." Many scientists, *e. g.*, Fritz Müller, Häckel, Huxley and Balfour, have accepted this as the explanation with certain modifications. The fact that the principle is so freely departed from shows the explanation to be insufficient. The reason appears to be deeper than this, though Darwin did not see it. He speaks of "the embryo often retaining structures which are of no service to it, either at that or at a later period of life," and says, "There is no reason why, for instance, the wing of a bat, or the fin of a porpoise, should not have been sketched out with all their parts in proper proportions, as soon as any part became visible." The reason of this is explained by His and Kleinenberg, who seem to bring us nearer the truth, while giving us a principle

that is very suggestive to the psychologist and the educationist. In "*Unsere Körperform*" (1874) Wilhelm His affirms that "each stage in development is both the physiological result of the foregoing and the necessary condition for the succeeding. To attain to complex, perfect, mature forms, the organism must pass through simple, imperfect embryonic forms." "This thought," he continues, "gives a new point of view from which to regard the fact that palingenetically old forms much resemble the embryonic forms of to-day. The former are embryonic because they have remained at a lower stage of development, the latter had to pass through the lower stages in order to reach the higher, not *because* their forefathers once passed through them, but simply from the inherent necessity of growth, which must always be from simple to complex; and the similarity between ancient simple and present embryonic forms would be comprehensible even if no relationship existed." Kleinenberg in his work on the *Lopodorynchus* offers much the same explanation for the existence of imperfect or rudimentary organs. He regards them as necessary to the origin of new and more perfect organs, both ontogenetically and phylogenetically. He cites, among many other examples, the notochord, which in the embryos of the higher vertebrates, is not retained, not even improved to form the vertebral column, but is rather *replaced* by the latter which grows around it and absorbs it in due time. Kleinenberg concludes that the notochord is necessary as a *stimulus* to the development of the vertebral column. "Of course," he says, "the skeleton develops in dependence upon the activity of the musculature; this latter, however, is in turn already brought into a definite form by the presence of the notochord. The notochord thus acts as a transition organ (*Vermittelungsorgan*) in the formation of the skeleton; even though the latter contains not a single element of the notochord, still it is only explicable through the previous existence of the notochord." W. K. Parker gives other beautiful illustrations of the same law in the growth of the oak around the heart-wood, and the thigh-bone in man about the small bone of the child, which becomes nothing but marrow. But if this is a law, how is it that the record is so often falsified; how is it that we have only sparse indications of the phylogeny in the ontogeny? The answer that naturally suggests itself is that from the principle of economy only those racial characters have been retained that are necessary for the proper development of later and higher characters.[1] If this is so, the importance of

[1] A. Sedgwick holds a view that is quite reconcilable with this opinion. In his opinion "ancestral stages of structure" (and doubtless he would also hold *of mind*) "are only retained in so far as they are useful to the free-growing organism, *i. e.*, to the larva" (and may we not

palingenetic characters, both physical and psychical, is the more manifest.

His's view, as he says, is not in opposition to the principle of descent itself, but it goes deeper; the fundamental cause he holds to be physiological and mechanical. And yet if one examine closely, one will find that though we have got farther we still have not the whole truth. "Differences in growth of different cells," says His, "cause new tensions according to which various folds and parts are formed." And so he formulates the law that "similar forms arise from similar material, when it offers similar conditions as regards absolute dimensions." But, we may ask, whence arise the *differences* in growth that in turn cause *new* tensions and the rest? There is no answer. E. B. Wilson,[1] indeed, confesses that "we are still profoundly ignorant of the nature and causes of differentiation and of its precise relation to cell-formation." As for Darwin's Law of Correlated Variation, Cope's Law of Acceleration and Retardation, Roux's Interselection, Minot's Post Selection and Weismann's fine-spun theories, while they certainly add light, they yet render our darkness as to the main point but the more visible. There seem to exist both an inner and an outer cause—the inner impetus being the tendency to vary, and the outer stimulus being the environment. But where the one begins and the other ends, it is impossible to say; they seem inextricably bound up together. In attempting to lean on either the one or the other, we are likely to beg the question continually; while by keeping both in view we find ourselves in a vicious circle, which has no beginning, and we are likely to conclude in despair that to know anything we must know all.

Whether the parallelism observed between the mental evolution of animals and the psychogenesis of the child be due to heredity or be but an illustration of a general law of growth—and it may be both—the fact of parallelism is patent enough, though often blurred either through insufficient observation or through the supervention of other principles and factors, as, for example, the differences that must obtain between adult and embryonic forms of life, and the necessity for condensation in the case of the embryo. The recapitulation theory may be only the statement of an analogy or a parallelism without any basis

add *to the child?*) "in its free development. . . . . The only functionless ancestral structures which are preserved in development are those which at some time or another have been of use to the organism during its development after they have ceased to be so to the adult."—"On the Law of Development known as von Baer's Law and the significance of ancestral Rudiments in Embryonic Development." Quart. J. Mic. Sci. XXXVI (1894), pp. 35–52.

[1] The Mosaic Theory of Development: Biol. Lectures, Mar. Biol. Lab., 1894, p. 14.

in heredity properly speaking. It may be in the nature of living matter to go through immature stages which depend on the constitution of the matter and not necessarily on the course taken previously by similar matter. An explanation of the phenomena altogether apart from the recapitulatory one is often at hand and is probably always possible, but this does not lessen the significance of recapitulation but increases it. Indeed, if Weismann's theory is true, the living matter of to-day has never phylogenetically passed through any stages, but is a part of or directly derived from the original protoplasm which is continually unfolding in new directions and forms. Still as each new form most resembles the immediately preceding, the germplasm giving rise to it must also resemble it potentially more than it does previous forms. Hence, on this theory, the evolution of forms of life proceeds *pari passu* with and is dependent upon the evolution of form potentially in the germ-plasm, the environment having merely a selective influence. But even so, the facts of analogy are none the less interesting. As in the physical world, so in the psychical there is a natural order of growth. Since it is the order of nature that the new organism should pass through certain developmental stages, it behooves us to study nature's plan and seek rather to aid than to thwart it. For nature must be right; there is no higher criterion. There is therefore no study of more vital importance to the educationist than this of the natural development of organisms. The parallelism of phylogeny and ontogeny enforces the argument in favor of natural development and the doctrine of katharsis[1] or psychical vaccination as applied to the moral growth of the child. It furnishes a double support to the view that education should be a process of orderly and gradual unfolding, without precocity and without interference, from lower to ever higher stages; that forcing is unnatural and that the mental pabulum should be suited to the stage of development reached. So long as we keep the end in view and do not cause the child to linger in any of the stages we need not fear the discipline that each stage is calculated to give as a preparation for the next. For what Von Baer long ago said of animals is true also of the child: "The type of each animal appears to fix itself at the very beginning in the embryo and to dominate the whole development."

The period of animal recapitulation is short. In this work the attempt has not been made to deal with the recapitulation of human stages of development, but reasoning from the fact that the length of time taken to recapitulate a period does

[1] For the Aristotelian theory of Katharsis see Benn's "Greek Philosophers," Vol. I, p. 305. Compare G. S. Hall's application of this to development, *Am. Jour. Psych.*, Vol. IX, pp. 16 and 17.

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not depend upon the duration of that period phylogenetically but upon its recency, we may conclude that the recapitulation of human stages of development is much longer than that of the longest animal stage, viz., the ape-stage. If we ever succeed in establishing these human stages they should form a norm for the education of children, which in its earlier stages should be generalized and recapitulatory rather than specialized and individual. Recapitulation and variation are complementary, and, as the child develops, recapitulation becomes of less and less moment educationally and variation more and more important and *massgebend*. We know, for example, that the human mind developed in close union with the development of the body in hunting, in warring, in making weapons and tools, in tilling the ground, in domesticating animals, in cooking, building, etc., and the child's mind should be permitted to develop in a similar manner. All the great primitive crafts should be represented as far as possible in their most elementary features in the education of the child.[1] Only by passing through these old racial stages does the child get natural preparation and stimulus for the proper development of his own individuality. It is earnestly to be hoped, however, that even after these recapitulatory stages have been established, it will not be attempted to make a stereotyped curriculum of them. For children show all kinds of irregularities of development, which the teacher is bound to take account of. The bane of pedagogy has always been the tendency to systematize, from which even the greatest educators have not been free: witness Comenius, Pestalozzi, Frœbel and Herbart. While phylogeny has great suggestive value, ontogeny will always be more important for pedagogy. Nature will generally sufficiently indicate in the ontogeny that which is important to recapitulate; at the same time the study of phylogeny should endue us with insight and wisdom to take the hints that ontogeny gives. And when the period of specialization *par excellence* has arrived, the child's specialization should not be controlled for him by a

[1] For an appreciation of the educational value of gardening and the description of an ideal school-garden see "Die Erziehende Bedentung des Schulgartens," by O. W. Beyer; Langensalza, 1895, H. Beyer & Söhne. For an account of the aims, principles and methods of sloyd carpentry consult "The Theory of Educational Sloyd" and "The Teacher's Handbook of Sloyd," by Otto Salomon, 2nd ed., 1896. Silver, Burdett & Co., Boston. John Johnson shows in an exceedingly interesting way the development of a primitive sort of land tenure, legislation, judicial procedure and industry among the boys of a large school in Maryland, situated on a farm of 800 acres. "Rudimentary society among boys," Johns Hopkins Univ. Studies in Hist. and Pol. Sci., 2nd series, No. 11, Baltimore, 1884, pp. 9–56. Reprint, McDonogh, Md., 1893.

cast iron system of class education; it should follow naturally the child's bent wherever this can be clearly discovered. And even if the bent should be in a different direction later on, let us follow—with caution, to be sure—still let us follow rather than lead there also, for the child's development is not necessarily, nor indeed generally, in a straight line.[1]

It comes out with great clearness from this study that while there is no such thing as an innate idea, still the mind of the child is not to be compared to a *tabula rasa*. The mind of the child is not merely nor chiefly receptive, but creative,—not passive wax to be moulded, but a living, active will, a bundle of instinctive tendencies to growth, within which his destiny is enwrapped. This is the fundamental part of man and conditions the more conscious part and will condition it as long as man exists. Instinct, not intelligence, still leads evolution. Intelligence is continually baffled and superseded, but instinct displays itself with the old vigor in ever new forms. It plays upon the intellect as upon a musical instrument and startles the old world every now and then with a new song.

It is the first business of the educator to discern these instinctive tendencies. And this he must do not only in the child as a type, but in each individual child with whom he deals; for there is no scientific principle better established than that of variation and none of more far-reaching importance. Biology teaches us that it is the over-specialized species that have always succumbed in the struggle. Man owes his pre-eminence to the fact that he is born an immature and generalized form and long retains this condition of plasticity. For this gives opportunity for the development of new and progressive variations and adaptations which keep him ever in the van of progress. Thus the crude early period of life, which Descartes so much deplored as a useless, nay, a positively noxious period, is, on the contrary, the very salvation of our race. Far from pessimistically seeking to tear down and rebuild the natural structure of those early years we should put faith in the promise of childhood and build reverently and hopefully upon the foundation it offers to our hand. If we should reverence the old man as representing the wisdom of the past, still more should we reverence the child, for he comes bearing the more glorious future. The Weismannian theory is at all events right in the emphasis it places upon the all-powerfulness of mother-nature and the futility and folly of struggling against her. It were better to study her plans and enlist in her service. Amid the

[1] *Cf.* E. G. Lancaster: "The Psychology of Adolescence." *Ped. Sem.*, Vol. 5, 1897, p. 120: "The growth of the mind may be compared to a circle which enlarges by extending one sector at a time out to a new circumference."

dense mist of the Weismannian controversy, therefore, the teacher's course at least is clear. Wise education and improved environment consequent thereon favor the development, if not the appearance, of the best variations, which, once having appeared and developed, are the more likely to be handed down. Consider for a moment the case of the dog. If the variation of pointing, latent in the dog, if you will, had never been observed, seized upon and developed by education, we should have no pointers to-day. The latent or potential variation would have remained latent and selection could have taken no account of it. Education, then, may control variation and through variation selection and mould the child and the race to their best possibilities. The teacher's aim therefore—an aim which demands the highest order of ability—is to seek out the child's own best possibilities and educate these to the highest degree. And he can best find and feed these by offering to the child a varied diet suited to his stage of development, not attempting a systematic and specialized regimen in the first few years; for the child is his own best teacher. In other words, the educator must feed the child's germinal tendencies as they appear with the rich sensuous and motor experience that they call for, trusting to the child to respond to the healthy stimulus. If we cage a bird in the act of migrating, it is in vain that we offer him crumbs and berries, he leaves them untouched and beats his wings against the bars of the cage till he be given the free air and sky.

The instinct of imitation, if we may call it an instinct, is not simple but presupposes the working of other instincts. The actions we imitate are those for which we have a natural bent, the acts of others serving only as stimuli, which may suggest like acts in us but do not necessarily unless we are by nature inclined to such acts. It is for this reason that the child is so suggestible, namely because his unformed mind is in an extremely generalized and plastic condition with a strong bent for experimentation in all directions. Here lies at once the strength and the weakness of childhood. And here lies the reason why early education should be broad and liberal, seeking to feed *all* the child's budding possibilities and not to determine his growth for him. Thus the child's predominant instinctive tendencies will have opportunity to develop in a natural and timely way into effective habits.

It becomes the teacher's duty, then, to examine the various kinds and modes of nutrition administered in the past and to keep his mind open for new and better ones. The old standard foods we are pretty well acquainted with. In the main the oversystematized plays and occupations of Frœbel, often unhygienic

and unpsychological,[1] reading, writing and arithmetic, the catechism, grammar, formal essay writing and mechanical drawing, morbid gymnastics and a certain kind of history, literature and geography administered in very meager and systematic doses. The new foods, myth and story and proverb, free play, marching[2] and dancing[3] to good music, singing within the compass of the child's voice, and drawing, based on the child's own interest and fancy,[4] and nature study; leading in naturally manual training (with a view to making a *boy*, not a tool), and the three R's or rather including religion the four R's, together with linguistic reproduction, wide reading, art and science in proportion as the boy develops interest and capacity. Such a diet, administered with pedagogical insight and tact, could not but produce sound, sweet, vigorous youth, ready for the great examination of Life which searches all men. Synthesis—the building up of large synthetic views—comes late and should be allowed to come of itself, the teacher only taking care that plenty of good elements be given.

At the very beginning a study of the development of curiosity clearly suggests the importance of making the young child a companion of the bright flowers, the gay and musical trees and birds, the lively and playful animals, and of taking him to see men in action, as, for example, the various tradesmen at their work as well as the work going on about the house. He should be taken to fairs and festivals, shows and circuses, races and sports of all kinds and museums of art and nature. In this way the child's mind will be opened and enriched and his

[1] In his study of motor ability (*Ped. Sem.*, 1894, III, 9-29) J. A. Hancock criticises as unnatural certain kindergarten methods that call for very fine and accurate muscular adjustments. F. Burk, indeed ("From fundamental to accessory in the development of the nervous system and of movements," *Ped. Sem.*, 1898, VI, pp. 62 and 63), is of the opinion that accuracy is not to be aimed at till the ninth or tenth year, because it requires a control that is not natural before then. For other criticisms not altogether so sound of Frœbelian methods, see N. Oppenheim's "Development of the Child," 1898, Chap. V. This writer puts too much emphasis upon knowledge, and entirely overlooks the unconscious or the sub-conscious, whose realm is wide and important, particularly in child-life.

[2] There are several little books containing pretty, graceful drills and marches for children with fans, brooms, flowers, dolls, flags, shepherd's crooks and the like. But these express only one side, and that the shallower side of child nature. What we need is a great artist who shall compose choral marches and religious drama for children or in which children shall bear a part.

[3] Of course, only quadrilles and simple dances under healthful conditions are meant.

[4] For an original use of drawing as a pedagogical device see C. A. Scott's article in the Transactions of the Illinois Society for Child Study, 1898, (Vol. III, No. 1,) entitled "Children's fears as material for expression and a basis for education in art."

ambition stimulated. It is unfortunate that puppet-shows are so rare, when we consider the child's great natural love and creative genius for the drama.

While the child is in the stage of keen interest in the names of things, advantage should be taken of this interest in language to give him the names not only of common objects but of the various animals and plants in which he is interested, that he may associate the appearance, sounds, habits, etc., of each as a unit with its proper name. The importance of language in adding definiteness and durableness to impressions and ideas and in widening the sphere of observation and interest can hardly be overestimated. The interest, however, must come before the name and it should not be attempted to stimulate analysis and abstraction by talking to the little child about 'elipses' and 'petals' and 'molecules,' and training him to experience and name sensations and qualities which he has no interest in as such.[1] To do this is to give him information which cannot be of any use to him and which can have only the driest kind of pedantic interest. But to teach him the names of birds and insects, of flowers and trees, standing for what they represent as wholes, is to stimulate his interest in the beauties of nature and make his life richer and happier.

I have met a university graduate who did not know a carrot from a parsnip, and yet he hailed from a great agricultural State and was at the time an instructor in botany in a far-famed university. Many city children have never seen common farm animals, such as the cow and pig, their ideas of them being derived solely from pictures; so that some even think the cow a tiny animal about the size of a mouse.[2] Such children are being starved not only in one of their strongest interests, but also in language and ideas, for all languages are replete with metaphors, proverbs and other folk-lore which allude to animals and plants and which must therefore remain meaningless to them.

The neglect of common and yet beautiful and stimulating things by educators is further evidenced by the prevalence of color-blindness, not in the technical but in the æsthetic sense of the term. While having a crude sense of color, we are still apt in most cases to see only relative light and shade, and these but superficially. The changing hues of the water and of the distant woods, the red sun after rain falling upon the wet road-

[1] R. P. Halleck in his "Education of the Central Nervous System," 1897, lays much stress upon sensory training. But the course of sensory training recommended seems too specialized and conscious, not to say pedantic, for normal children.

[2] *Cf.* G. S. Hall: "The Contents of Children's Minds," reprinted from Princeton Review, 1883, by Kellog & Co., N. Y.

way, the varied tints of grasses, soil and snow, sky and cloud, all escape us. It is beautiful things above all that the child should be given to see and hear, for he has while quite young an instinct for the beautiful. Childhood is the time to attune the soul to beauty of form and color, to melody and harmony. The child is, moreover, an out-of-doors animal; he belongs to nature, and one can do him no greater service than by developing his love and appreciation of the beautiful in color, in bird-song, in cloud-form and in the scent of woods and fields. It were wise to develop in childhood and boyhood the love of the beautiful as a preparation for the appreciation in maturer years of poetry and art, as well as for the sake of its immediate ethical value in the culture of the feelings.

The intimate connection that we have seen to exist between curiosity and the play instinct, of itself suggests the importance of stimulating the development of the child's mind through the motor as well as the sensory channels. Children, and, indeed, adults also, learn best by doing, because they cannot do without attending. Any one who has studied one science by listening to lectures and reading books and another science or the same science later by working in the laboratory and the field, will have fully experienced the truth of this statement. This truth has not received sufficient application in our systems of sedentary education, particularly in the primary grades, where the application is most urgent. Every part of the living body is also in effect part of the soul, and the atrophy of any part of the body involves the partial paralysis of the soul. While true of every single tissue, this is most strikingly illustrated by the eye, the ear, the voice and the hand, the four great organs and avenues of the soul. It is strange that the hand, which has been of so vast importance in racial evolution, should be so much neglected in our educational systems. The little child in his self-activity teaches us better. If instead of the word "soul," as used above, the word *brain* is put, the statement will be more scientifically accurate, but practically amount to the same thing. The cerebrum, according to Flechsig, is divided into sensory areas and association areas. The sensory areas are at the same time motor areas, and this is especially true of the great somæsthetic sphere. The association areas, although penetrated by a few projection fibers, are in the main each a great net-work of paths between the various sensory-motor spheres. Moreover, the somæsthetic region is far richer in association systems than the other sensory regions, and indeed is intimately connected with all parts of the cortex. These facts clearly indicate the importance of uniting sensory and motor in education if we would wake up all the nerve-cells, make a well-developed, well-knit brain, a strong personality.

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It is now admitted that the attempt to educate by direct appeals to imagination and verbal memory without the mind being previously enriched with images drawn from experience, is absurd. It is also beginning to be seen that education built up on a sensory experience that excludes the kinæsthetic element, no matter how otherwise rich and varied the sense-images, is and must be lop-sided. Indeed motor training is in a way more comprehensive than sensory, for while sensory training in most cases involves but little motor training, to wit: of the nervous centers for the sense-muscles (of great significance to be sure), motor training involves very great and varied use of the senses. "In most composite movements," to quote Du Bois-Reymond,[1] "something else than the control of the muscles by the motor-nervous system comes into consideration. The sight, the sense of pressure, and the muscular sense, and finally the mind, must be prepared to take in the position of the body at each instant, so that the muscles may be in a proper state of adjustment." The unity of sensory and motor is best seen in the hand, in which they are equally important and blend in a beautiful way that makes this the greatest organ of the soul and its training of the very highest value. Furthermore, motor training is of the highest significance for the training of the will, for the education of the will practically consists in the development of the co-ordination of muscle and mind. Flabby muscles of sense and movement, lazy observation, slovenly thought, atrophied emotion, all belong together, and are inconsistent with strong will-power. Thus all training, whether ostensibly directed to the body or to the mind affects the will, and that form of training which co-ordinates skillful and varied use of the muscles with observation and thought must afford the most effective education of the will.

The teacher should not single out any of the child's senses or muscles or groups of muscles for special direct training, not even the hand, voice, eye or ear. He should never forget that he is training a child, not a collection of senses and muscles. A method of training the will such as Seguin's,[2] which is successful with idiots, is not therefore necessarily to be recommended for normal children with muscles in good tone and minds wide awake and full of interests. In training the idiot, the object is to arouse interest; in educating the normal child, the object is to feed a spontaneity already abundantly present. In the case of the indifferent idiot, the training must be much more formal

[1] "The Physiology of Exercise." Pop. Sci. Mo., 1882, Vol. XXI, pp. 326 and 327.

[2] E. Seguin: "The psycho-physiological training of an idiotic hand," and of "an idiotic eye." Archives of Medicine, N. Y., 1879. Vol. II, pp. 149-156 and 1880, IV, pp. 217-233.

and systematic and the sole aim and result is to bring him to a condition weakly resembling that which the normal child naturally and speedily reaches by himself.

The training of the first few years—if one may judge from observation of the child—should in the main be of a large and general character, calling into play the harmonious and pleasurable action of as many muscles and senses as possible. There is nothing so healthful as pleasure, as cheerful interest. The little child of kindergarten age and under should be given tools, such as hammer, spade and wheelbarrow, suited to his strength, and plenty of large things made of various materials which he can handle and move about, for he takes a delight in putting forth his strength and overcoming difficulties, in getting practical acquaintance with the properties of matter and developing his kinæsthetic senses. It is not meant that this is his conscious aim, but the attainment of such knowledge is the practical result and the real source of his interest. E. Seguin[1] emphasizes the importance of meeting even the suckling's wishes in this regard: "To see and not to be able to reach, to perceive images with no possibility of seizing the objects, renders the infant impatient, fretful or unconcerned, and opens an era of exaction upon others, or of diffidence of himself, or of indifference for any attainment, which unavoidably ends in immorality or incapacity, or in both." The child should be given materials with which he can build (sand, large blocks, bricks, etc.), for he is a born architect, and divers simple mechanical contrivances upon which he may exercise his genius for investigation and experimentation.[2] He should also be put in the way of making objects that may serve as toys or as useful articles for the home, for the child delights to serve. In this way both self-assertive and social instincts would be appealed to and developed.

By the games that they have themselves created, chiefly through inheritance and imitation and partly through invention, children plainly tell us what their education should be,—to be left alone as much as possible with their games of strength and skill, of experimentation and imagination.[3] This is nature's

[1] Pop. Sci. Mo., 1876, X p. 40.

[2] E. H. Lindley treats the puzzle interest in an original and interesting way in *Am. Jour. Psych.*, 1897, VIII, 431-493.

[3] See Alice B. Gomme's charming little book "Children's Singing Games with the tunes to which they are sung" (Macmillan's, 1894), and "The traditional games of England, Scotland and Ireland," by the same author; also W. W. Newell's "Games and Songs of American Children" (Harper Bros., 1884). For a beautiful instance of self-education through play, see "The Story of a Sand-Pile," by G. S. Hall, reprinted by Kellogg & Co., from Scribner's Magazine for June, 1888. The advantages of free play are well set forth in an article by J. L. Hughes, "The Educational value of Play and the recent play move-

way of educating the child, of making him intelligent and fitting him for the complex environment of manhood. By standing over the child and dictating its education, by imposing upon it his own habits of thought and action, the teacher thwarts the work of nature and makes a machine, not an intelligent, adaptable and virtuous man. If nature had intended to make a perfect piece of mechanism, she could have accomplished it by making a creature of full-formed habits and reflexes. But this nature does only in the case of the very lowest animals. As the animal scale is ascended we find more and more that the young must learn for themselves, and this they do in their play.[1] Among the higher animals, however, the parent often helps its young to learn, and the instinct in man to teach the young is a deep and true instinct.[2] But the human teacher, if he but try to interpret the purposes of nature, will see that it is not the lesson, the piece of work, the rule, the principle, the idea, that is of the first importance, but the intelligent mind which does the work and which wins the idea. He will also see that any system of training, whether mental or physical, whether grammar or gymnastics, which has from the child's standpoint no aim or interest but "the development of the mind" or "the perfecting of the body," is morbid and unnatural in principle and liable to do more harm than good in practice. Such aims are for the teacher, not for the pupil. For the pupil the work must be in itself calculated to arouse his interest and stimulate his best efforts, apart altogether from its supposed effect upon his mind or body. "Mental discipline" has but too often been the cry of defence of bad teachers and bad pedagogy. The introduction here and there in our schools of the school-garden and sloyd carpentry to supplement free play is an encouraging sign and must have the happiest results if only the true aim be kept in view. The principles that should govern motor training have been concisely stated by Gustaf Larson in a definition of sloyd: "Sloyd is tool-work so arranged and employed as to stimulate and promote vigorous intelligent self-activity for a purpose which the worker recognizes as good." With the rapid increase of urban population and the failure to set apart fields and groves in sufficient number and extent,

ment in Germany," Ed. Rev., N. Y., 1894, VIII, 327-336. Du Bois-Reymond ("The Physiology of Exercise," Pop. Sci. Mo., 1882, XXI, pp. 441, *et. seq.*), considers German turning superior educationally to English sport, particularly because "it results in a more equable perfecting of the body." It would seem that the German system should conduce rather to strength than to a healthy, natural development, and had best be used chiefly as a medicine to supplement sport.

[1] *Cf.* Gross: "Die Spiele der Thiere." 1896.

[2] *Cf.* D. E. Phillips: "The Teaching Instinct." *Ped. Sem.*, VI, 1899, pp. 188-245.

the conditions for healthful early training are continually becoming more difficult. Hence the growing necessity of artificially creating healthful conditions of early development by establishing playgrounds and erecting pavilions for the children of cities. S. V. Tsanoff has profoundly felt this need and outlines his plan for meeting the abnormal urban conditions in his book "The Educational value of Children's Playgrounds. A novel plan of character building."[1] The novelty of Tsanoff's idea consists not in recognizing play as a means of character-building, but in organizing and exploiting play consciously for that purpose, much as Frœbel organized it mainly for intellectual purposes. But surely here as in the kindergarten the best teachers will be those who need to interfere least; for children learn much better, much more naturally and practically from each other than from teachers. There is one function, however, that the teachers might perform to great advantage in these gatherings of the children, — namely, *story-telling*. This might be made of great educative influence and prepare the worse spirits to join in the sports with a good will.

The child's initiation into the delights of nature and history should begin at home in the natural history and culture history of his own neighborhood. By taking care that the child's associations with home are rich and full, we shall provide for the man an inexhaustible source of inspiration.[2] With this end in view the following is suggested as a sketch of an ideal curriculum for an American or Canadian school, depending for its success not upon text-books, examinations, and all the other impersonal paraphernalia of our systems of education, but solely upon the ability of the individual teacher. First, a study of the rocks and minerals of the neighborhood and the products thereof, as pebbles, sand, clay and soils. Second, a study of the topography and climate of the district. Third, a study of the plants and their relation to soils, together with work in garden and orchard, if possible; also a study of the woods and work with them *à la* sloyd. The wood-work should be co-ordinated with the Natural History in the making of shelves and cabinets for specimens, weather-vanes, bird-houses, and the like. Fourth, a study of the wild animals and the relation of the fauna with the flora, the climate and the topography of the district. The close connection of the industries of the neighborhood with the presence of these various natural conditions and products should then be noted: as mining, agriculture, lumbering, manufactures, commerce and navigation, and the

[1] Philadelphia, 1897.

[2] *Cf.* Vachon: "Rembrandt als Erzieher," and Sir A. Geikie: "Types of Scenery and their Influence on Literature. London, 1898.

accessory trades and professions. It should then be pointed out that such a collection of persons is a community with a thousand subtle interrelationships and interdependencies. A study of the government of such a municipality will then be in order, commencing with its present state and tracing it back to its beginnings, while showing the connection between this development and the growth of the community. Then the primitive savage community that preceded the coming of the white settler should be described and richly illustrated by Indian myth and story. Lastly, the perspective of geography and history should be widened outward and backward to include the county and district of which the community forms a part, then the province or state, then the country the continent, the empire, the world; the whole being continually illustrated by song and story drawn from the literature of the people in its various stages of development.

The study of the physiography, natural history and industries of the neighborhood should be observational. Two or three afternoons a week, at least, and occasionally a whole day should be spent in walks and excursions to the fields and woods, the mountains and waters; to mine and quarry, lime-kiln and brickyard, foundry and machine shop; to market and fair, farm and sugar-bush, mills and factories; to canal locks, harbor, lighthouse; to the shops of the shoemaker, carpenter, horseshoer, etc.; to large stores and warehouses; to law courts; to public buildings and works; to museums and fish-hatcheries, and to art galleries. The children should be taught how to find their way through the woods with and without a compass, and should be exercised in mimic bush-warfare and scouting and the sports of the season.

Individual collections should be made of the rocks, minerals, fossils, soils, woods and shells in the autumn term, and of pressed flowers, of moths and butterflies and other insects in the spring term. The school should also have a little museum, the best specimens being reserved for it. The flowers, leaves and birds should be drawn and painted and accounts given orally and in writing of the various excursions. Maps, topographical charts, clay models and sketches should be made, as well as records of the observations of nature, including the weather. Such a course should be begun in the kindergarten, the little ones being taught to collect flowers and leaves in spring and fall and to note their characteristic shapes and colors; to collect mosses, budding twigs, evergreen branches, nuts, berries, grain, seed, birds' nests, fruit and vegetables in the fall; and tastefully to decorate their room with these natural objects.

In this way observation and imagination, emotion and reason

will develop hand in hand and not be separated as they are by our unnatural pigeon-hole methods of education. The child will be learning geography, geology, botany, zoölogy, history, literature, composition, drawing, painting, singing, manual work, in fact about everything, except mathematics, that is found in a school curriculum and much besides, and yet, learning them in a natural and coherent way, he will not feel burdened with a multiplicity of subjects. All will seem one subject, and each part of the work will derive interest and stimulus from the others.

Childhood is the time for the cultivation of the tastes both physical and psychical. Our ordinary conception of child education is too low and narrow. Nothing is too good for the child. His mind is vastly larger than our curricula. The truly great teacher is he who can reach out in all directions for an abundance of the best culture-material and work it over for the child into a fit state for him to digest. This is the primary teacher's true specialty—not to know one subject thoroughly as a specialist in that subject, but to have a rich store of information and accomplishment drawn from all sides, from nature and art, from history and literature, and from a wide experience both motor and psychical, and to be able to present this in a form suitable to his pupil's stage of development. In a word, the primary teacher's aim should be to make the child's mind a generously endowed apperceptive organ. The metaphor used, however, has its limitations, and in using it one runs the risk of being misunderstood. The teacher will need to exercise much judgment in seeing to it that the child earns this food over again for himself, and does not gulp it down passively in the old gradgrind way.

Children are naturally naïve, credulous, lovers of nature, eager to please, eager to learn, eager to do things. Why then these plaints we so often hear from both teachers and pupils? "I detest teaching!" "I hate school!" This is partly due to the almost purely sedentary, bookish and machine-like education given in our schools, curbing the child's vigorously sprouting will, repressing his beautiful play-instinct, constraining his rapidly waxing strength, his growing muscles tingling and hungering for activity. The early prominence in the child's speech of verbs and words used with verbal force is an evidence of the child's keen interest in activity.[1] At 8 years of age children are much more interested in the action of objects than in any other attribute;[2] and from about 5 to 9 years of age they

[1] *Cf.* F. Tracy: "The language of childhood," *Am. Jour. Psych.*, 1893, VI, p. 126.

[2] *Cf.* E. R. Shaw: "A comparative study on children's interests," Child Study Mo., 1896, II, pp. 152-167.

are especially fond of representing action in their spontaneous drawings.[1] The healthy child is by nature *actively* receptive and must rebel or sicken under a cramming system. In the generalized state of his consciousness the child naturally reaches out in all directions for new experiences of taste and sight and sound, movement and emotion. He loves to impersonate people and animals and to make believe that one thing is another. He will be everything and do everything. That is the form which the self-assertive instinct takes at this early age. How unnatural to chain such pulsating life to a desk and enshroud it in a narrow school-curriculum! We rob him of his childhood by our forcing methods of confinement, silence and routine. Both before the "school-age" and during the first few years of school-life, we do the child injustice by making him the slave of a few definite habits, at a time when he would be still testing himself in all directions. We ought not to impose habits upon him but leave him to choose those directions most clearly indicated to him by his instinctive tastes and interests. It is for this that nature gives man a long period of immaturity—for this and for the building up of a strong physique to meet the ever-increasing demands of an advancing civilization. As human life becomes more complex, the plastic years of childhood become more and more precious and the question of their education more critical, more decisive for the future both of the individual and of the race.

The present admittedly unsatisfactory state of education is also partly due to the teacher's lack of enthusiasm. A new enthusiasm is needed in teachers, which can only be given by an earnest study of the child as it is, actually and potentially, instead of the child as we would have it. Wisely to present culture material to the child and the youth, we must know their wants, we must fathom their instinctive tendencies and their natural capacities. The teacher intrudes himself too much upon the child; his art is too apparent. The true pedagogic method is not dictation but questioning and suggestion, with a view to throwing the child upon his own resources and developing the feeling of responsibility, self reliance and true pride out of his instinct of self assertion. The child does things best when he is at his ease; we should respect his naïveté, his spontaneity, his unconscious instinctive way of learning. Less system and more insight!

Again, this deplorable state of education is very largely due to our system of mass-teaching, which distinctly discourages

[1] *Cf.* L. M. Maitland: "What children draw to please themselves," Inland Educator, 1895, I, 77-81. Children should be encouraged to illustrate by original drawings the stories they read or hear.

true education and in most lines of study makes it all but impossible. The real difficulty after all is the financial one—school-taxes! It must be admitted that bad as is the education the people are getting, it is quite as good as they pay for, and to have a better they must pay far more. This is recognized in all other lines of business, but persistently ignored in the business of education, which must at all costs be made cheap! The number of children generally assigned to a teacher in our public schools is so great as to render individual study and training of the children exceedingly difficult. Nevertheless every true teacher will strive towards the attainment of this ideal. The child's all important instinct feelings of courage, pride, fear, anger, love and pity should be studied with a view to a full rounded development of them in worthy directions. And so the educator should begin by asking himself: In what instincts and instinct-feelings is this child strong? In what weak? What are his fears? Of what nature are the things that arouse his anger? and his sympathy? How great is his spontaneity? His power of self control? Which one or more of the four temperaments does he possess?[1] With what degree of impressionability or suggestibility is he endowed?[2] Is he predominantly emotional, intellectual or active?[2] Has he already contracted any bad habits?[3] Is he characteristically ambitious or lazy, confident or irresolute, careful or reckless, bold or timorous, yielding or contrary, frank or sly, sociable or shy, tender or rough? Of what nature are the things the child

[1] *Cf.* Wundt: Physiologische Psychologie, pp. 421-423.

[2] Bain contrasts the spontaneous activity of those of an "active temperament" with the activity of "sensitive and emotional natures," an activity that results "more from some stimulus or object than from an innate exuberance of action." "The Senses and the Intellect," 3d ed., 1886, p. 70. Ribot (Psychologie des Sentiments, 1896), from another point of view makes a subtle distinction between the "affective" and the intellectual type of mind. "There is," says Ribot, "an affective type of mind which consists in the easy, complete and preponderant revival of affective impressions." The majority of people, however, he believes, have no free, *i. e.*, complete, emotional memory, in which the intellectual element is only a means of revival and rapidly effaced. Donaldson (Growth of the Brain, p. 342) seeks to express these distinctions in the following rather crude neurological terms: "It is readily seen that a high degree of responsiveness among the central cells gives us the intellectual type of reaction. When the efferent portion is well organized, we have the anatomical conditions of the man of affairs or action, while exaggeration of the afferent or sensory component leads to a merely passive existence or to hysteria, according to circumstances." It is more probable that the true basis for all types of mind is found in the peculiar disposition of the central cells—of which we know next to nothing.

[3] S. E. Wiltse makes a skillful use of suggestion in story telling to counteract bad habits. See "The Place of the story in early Education." Boston, 1892. Ginn & Co.

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remembers best? What is the present state or content of the child's mind, his knowledge of things, of language, of number, etc.? That is to say, of what nature are his apperceptive organs? Is the child quick or slow-witted, alert or apathetic, attentive or scatter-brained, imaginative or matter-of-fact, inventive or rutty? Is he predominantly eye-, ear-, or motor-minded?[1] Is there a basis or explanation for his mental or moral qualities discernible in the physical condition or environment of the child?[2] What is the condition of each of his senses as compared with the normal?[3] Is he precocious, backward, unsymmetrical or otherwise exceptional in physical, mental and emotional development? Of what nature is his fatigue curve?[4] Is he well nourished or anæmic, cheerful or misera-

[1] Consult on this matter F. Queyrat: "L' imagination et ses variétés chez l' enfant," Paris, 1893; W. H. Burnham: "Individual Differences in the Imagination of Children," *Ped. Sem.*, 1893, Vol. II, pp. 204-225; Donaldson: "The Growth of the Brain," pp. 341 and 342; and A. Fraser: "Visualization as a chief source of the psychology of Hobbes, Locke, Berkeley and Hume, *Am. Jour. Psy.*, 1891, IV, pp. 230-247.

[2] W. T. Porter ("Physical basis of precocity and dullness," Am. Phys. Ed. Rev. Vol. II, 1897, pp. 155-173) found that of children of the same age in the St. Louis schools, the dull were inferior, and the precocious superior to the average in weight, height, girth of chest and width of head, but the comparative growth of the three classes was the same. For much information along this line, useful to the teacher desirous of doing justice to his pupils, see F. Warner's works, and especially "The Study of Children and their School Training," 1897, Macmillan & Co., N.Y., and "A course of lectures on the growth and means of training of the mental faculty." Cambridge, at the Univ. Press, 1890. The latter contains lists of references to Dr. Warner's other contributions. F. Burk makes a résumé of the various studies of children's growth in height and weight in *Amer. Jour. Psych.* 1898, IX, pp. 253-326. The teacher should also have at his elbow, H. B. Dowkin's "Diseases of Childhood," London, 1893; Chas. Griffin & Co. For further references see the very complete "Bibliography of School Hygiene," by Wm. H. Burnham, Clark Univ., in Proc. Nat. Ed. Assoc. 1898. The question of psychological differences in children, due to sex, has received but little attention as yet. E. H. Bentley ("Sex differences that have been brought out by child study," North Western Monthly, Lincoln, Neb., 1897, Vol. VIII, pp. 257-261) has gathered together most of the meager information we have; but this matter does not attain prime importance till puberty.

[3] The educationist will find E. W. Bohannon's "Study of peculiar and exceptional children," suggestive in this connection: *Ped. Sem.* IV, 1896, pp. 3-60. For some excellent advice as to the study and treatment of neurotic children, see an article by J. Royce on "Mental defect and disorder from the teacher's point of view," Ed. Rev., N. Y., 1893, Vol. VI, especially pp. 451, *et seq.*

[4] *Cf.* E. Kräpelin: "zur Hygiene der arbeit," 1896: "Children are incomparably more fatiguable than adults, but there exist among them extraordinarily great differences, which are the more liable to be overlooked since great fatiguability is usually associated with great capacity for improving one's work by practice." In his treatise "uber geistige Arbeit, 1897, Kräpelin strongly condemns the present long

ble, patient or irritable, quiet or restless,[1] stolid or nervous, choreic and uneasy? Making all due allowance for the age and the kaleidoscopic nature of the child, the answers to such questions will disclose the foundation upon which the educationist must build. Such an examination—made of course without the child suspecting it—cannot be too thorough, for it is essential as well for the proper physical and intellectual as for the emotional education of the child. The teacher should be a physiologist, and should have constantly in view the health of his pupils, his function being to prevent rather than to cure disease, for no education worth the name can be gained at the expense of health.

The young child is not reflective; he does not naturally make the conscious distinction between right and wrong, therefore he is not moral—nor is he immoral. But he does instinctively many things that are right as well as many things that are wrong from our standpoint; he is kind and sympathetic, but also greedy and cruel; therefore he is instinctively good, but also instinctively bad. In fact not only our terms 'moral' and 'immoral' but also 'selfish' and 'altruistic,' 'cruel' and 'sympathetic' and the like are terms whose meaning has shaped itself from the adult standpoint and largely from a consideration of adult conduct; they are terms of adult ethics and not applicable to childhood without great reservations. The child passes through a purely instinctive animal stage. His conscience is made up of instinctive feelings, not reflective knowledge. The great pedagogic problem of to-day is: How shall we bring the child safe and sound through this stage without, on the one hand, lopping off those basal animal instincts that often express themselves in ugly forms and getting as a product an atrophied creature lacking the fire and color of youth; and, on the other hand, without risking the growth and permanence of evil habits by an extreme and impracticable policy of *laisser faire*? Rousseau, entirely ignoring man's social instincts, fondly believed that in a "state of nature" freed from contact with man the child would grow up a perfectly symmetrical being. The accounts we have of feral children[2] are calculated to quench such false optimism.

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hours of school and infrequent recesses and believes that, under present conditions, inattention is the pupil's only safeguard and consequently tedious teachers are a real necessity." The true remedy, however, lies rather in reforming education than in shortening the time devoted to it, always excepting the "home-work," which should be abolished at least from the primary and grammar schools.

[1] *Cf.* H. S. Curtis on "Inhibition," *Ped. Sem.*, 1898, VI, pp. 97-100.

[2] *Cf.* E. B. Taylor: "Wild Men and Beast Children." Anthrop. Rev., 1863, I, pp. 23–30; and A. Rauber: "Homo sapiens ferus oder die Zustände der Verwilderten in ihrer Bedeutung für Wissenschaft, Politik und Schule. Biologische Untersuchung." Zweite Auflage, Leipzig, 1888.

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On the other hand the pessimistic belief in total depravity and the necessity of making the child over again from the beginning is equally unfounded; the great rebirth comes naturally at adolescence. Meanwhile the normal and healthy education of the child's sentiments from birth to puberty can only be ascertained by each educator for himself by reverent study of the child's nature with a view to securing to him the full pedagogic value of lower stages of growth and of bridging him over in a tactful and timely way to ever higher.[1] One thing comes out clearly from this study of the child's instincts, viz., that the child by nature is and must be predominantly self-seeking, demanding and receiving more than he gives, and hence any premature grafting of altruism upon him is liable to produce a sickly growth.[2]

Nevertheless, though not naturally altruistic or self-denying, the child is social, making friends readily with all creatures and even including in his catholic sympathies inanimate things, for imaginative childhood takes little account of the distinction between animate and inanimate. This, then, is a valuable clue and starting point for the educator—intercourse and friendship, not only in the home circle, but with other children, with animals, with the flowers and the moon and the clouds. The great phenomena of nature, whose beauty, majesty and mystery appeals so strongly to the child, are his first natural objects of worship. The child who is permitted and encouraged in awe and love of these as superior beings will have all the more perfect reverence for a purer God later on, as well as a keener scientific interest in the works of nature.[3]

The child's instincts are not due to environment, his habits are, in the main; the former are inherited, the latter are largely acquired as a result of education, using this word education in its broadest sense. And herein lies a great distinction between man and animals; for with animals habits are mainly innate and fixed, and this to an increasing extent as the animal scale is descended. But the great all-conditioning instincts and instinct-feelings are due, in animal and child alike, entirely to heredity and variation,—indeed one may say that psychically they *are* the animal and the child. Happy is the child who is richly

[1] There is no more convenient means of applying at once the doctrines of catharsis and of recapitulation than in the selection of the child's reading.

[2] The natural time for emotional training and a training in ideals is the period of adolescence. *Cf.* W. H. Burnham: "The Study of Adolescence." *Ped. Sem.*, 1891, I, p. 194.

[3] *Cf.* G. S. Hall: "The moral and religious training of children and adolescents," *Ped. Sem.*, I. pp. 196-210; and Jean Paul Richter (Levana): "When what is mighty appears in nature, a storm, the starry firmament, death, then utter the word 'God' before the child."

endowed therewith. These instincts, then, which every child has, although in varying form and vigor, must be turned into worthy grooves. Not suppression but a generous control!

Character is the habitual direction taken by the individual in response to his instincts. It is evident, therefore, that the formation of character is the end and aim of education. While enlightenment and reflection must and should come in good time if the youth shows taste and capacity for it, nevertheless the great aim to be kept ever in view is the forming of good habits of feeling and action rather than the habits of self-examination and ethical and philosophical reflection. To do right from instinct and habit, mechanically, if you like, and because one cannot do otherwise, is infinitely preferable to a reasoned morality. If it be borne in mind how suggestible the child is, how strong, how omnipresent his imitative instincts, the gravity of the teacher's function will be appreciated. The strenuous endeavor of the teacher should ever be to help his pupils to be *themselves*.

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LITERATURE.

Shakespeare, Voltaire e Alfieri e la tragedia di Cesare. Saggio di critica psicologica. LUIGI DE ROSA. Parte Prima. Camerino, Tipografia Savini. 1900. pp. xiv + 389.

Professor de Rosa's book is the first part of an interesting study in comparative literature from a psychological point of view. Among the topics discussed are: the age and tendency of Alfieri and Voltaire; Shakespeare's times and his marked objectivity; the Teutonic mind and the dramas of Shakespeare; the psychology of Shakespeare and classical psychology; Shakespeare's dramas and the classical drama; Shakespeare and Voltaire; Shakespeare and Alfieri; Voltaire and Alfieri. According to the author, Alfieri, as the initiator of revolutionary literature in Italy, and Voltaire, as the protagonist of rationalism in France, were both "*tendence*-poets," but the liberal movement in Voltaire's mind was for free thought and did not directly oppose itself to despotism, while Alfieri's liberalism was coincident with tyrannophobia. Voltaire was a "gentleman of the king," who looked upon royalty as a cure for the "canaille." Alfieri, it is true, did not love the demos as much as he hated the tyrant, but he was a great deal nearer the democratic ideal of to-day than was the great Frenchman. In Voltaire, too, the critic and the poet were more out of harmony with each other than was the case with Alfieri, who was always more coherent and less incongruous, and was able to "execute what Voltaire only dreamed about." In their tendencies towards simplicity, their desire to make an effect, and their didactic penchant, these two men of letters resembled each other, but with not able individual differences. Neither by art nor by their genius do Voltaire and Alfieri "belong to the family of Shakespeare," but the latter is closer to him than the former. Shakespeare is no "*tendence*-poet," for he is, as Coleridge said, "hundred-sided, thousand-souled;" he is the "ocean-man." To use Professor de Rosa's words (p. 29): While Voltaire, and, even more markedly, Alfieri, always put a part of themselves into all the creations of their mind, Shakespeare is able to personify, one after the other, all the ideas and all the tendencies, to objectivize himself in all forms, and to make them all live, forgetting himself almost completely." In other words, Voltaire and Alfieri are manifest in all their creations; Shakespeare lies hidden behind his. The last has the fundamental characteristic of genius. Shakespeare is the ensoulment of the Teutonic mind with its concepts of art and of ethics; he represents the Teutonic as opposed to the classic mind, being preoccupied by the inward reality, the secret face of human facts as they present themselves before the conscience of man. What is within man belongs to Shakespeare more than to any other poet. Shakespeare's personages have an evolution such as none in the classical dramas ever have; they are individuals who live and move and have their being as men and women of flesh and blood, natural and not artificial. They have all the phases of human personality; they are governed and transformed continually in accordance with the supreme laws of environmental adaptation. The play of circumstances, the labor of the individual are both made genial by his art. The text of Shakespeare is nature's own manuscript. He is the priest of

her inner shrine. For Voltaire Shakespeare was always somewhat of a savage, while Alfieri feared that his touch would deprive him of all originality. The volume contains also many valuable data concerning the inter-influence of England, France, and Italy, especially with respect to the fame and appreciation of these three great men.

ALEX. F. CHAMBERLAIN.

Antropologia pedagogica. C. MELZI. Arona, Tipografia economica. 1899. pp. vii + 251.

This little volume, to which Prof. G. Sergi furnishes a brief introduction, is written by one of the chief movers in the agitation for school reform in Italy, upon the lines of "child study." After introductory sections on the scientific view of education, the relation of anthropology to pedagogy, the value of anthropometric researches in general, etc., comes an account of the Anthropometric Laboratory at Arona, the first institution of the kind to be installed in any Italian elementary school (pp. 27–117), then sections on Anthropometry and its Technique (pp. 119–188), Education of the Sexes (pp. 189–219), and Brain-Fatigue (pp. 221–246). Prof. Melzi is a teacher in the schools of Arona (previously he had been assistant in the Royal Deaf-Mute Institute at Milan), was trained under Sergi, and the installation of his "child study" laboratory on Oct. 20, 1897, was an event in the history of Italian education. The observations taken are physiological (anthropometric measurements, examination of sense-organs, physical constitution and state of health), and psychological (intellectual, affective and moral phenomena, temperament), besides data concerning parentage, family, etc. The schedule, which has been drawn up after consultation of all similar documents in use in Italy, is given in full at pages 60–68. The author also gives a list of subjects for investigation in the laboratory and school (pp. 109–114), numbering some 37 and ranging from the "sense of order" to "the effects of nasal obstruction on intelligence." The anthropometric data of the author himself, given in various brief tables, confirm the general results of previous investigations: the precocity of stature in girls, the more normal and more regular growth of the well-to-do as compared with the poor (Melzi found that the urban well-to-do were not so tall as the rural well-to-do, while the rural poor were taller than the urban poor), weight, vital capacity, thoracic circumference, muscular strength, measurements of head, tactile sensibility, etc.

Among the things advocated by the author in the way of school reform are the the following: A change in the nature of manual labor and pedantic acrobatic gymnastics such as will bring them into line with real educative processes without decreasing their pedagogical value; out-of-doors exercises, walking, swimming, skating, etc., are to be preferred to in-door gymnastic work,—gymnastics at the desk or in the school-room are bad in principle and disastrous to health; the shifting of the emphasis in the education of woman to the scientific side instead of the too exclusively literary training hitherto advocated and adopted so widely,—the *plus* of science will round out woman's character to the full; the scientific organization of the schools upon an evolutionary basis in harmony with the highest and best modern ideals. Prof. Melzi's book is a characteristic product of "newest Italy."

ALEX. F. CHAMBERLAIN.

Convocation Address, University of Toronto, October 1st, 1900. By the President, JAMES LOUDON, LL. D., Toronto. The Publisher's Syndicate, Limited, 1900. pp. 12.

The subject of this noteworthy address is "How shall the Youth of

our land obtain a Liberal Education without Unnecessary Waste of Time and Effort?" Like Prof. Münsterberg, President Loudon asks "Why do our young men lag years behind the young men of Germany in attainment?" After a severe and just criticism of the methods in vogue in High Schools Education and during the preparation of young men for the College and University, using Germany to measure by, President Loudon concludes that "if the advocates of a three years' course [for B. A.] can secure the necessary modifications in what precedes, a proper proportion in the preparatory subjects, and the introduction of language study say two years earlier than at present, I see no reason why the Arts course might not be rearranged and sputened by a year, without impairing the standard." This address adds another strong note to the demand for reform in secondary and University education.

ALEX. F. CHAMBERLAIN.

The Child: A Study in the Evolution of Man. By ALEXANDER FRANCIS CHAMBERLAIN, M. A., PH. D., Lecturer on Anthropology in Clark University, Worcester, Mass. *Contemporary Science Series.* Walter Scott, London; Charles Scribner's Sons, N. Y., 1900. pp. xii+498.

This book, as the author says in the preface, is "neither a treatise on embryology, nor an essay in anatomy or physiological psychology," but is "a study of the child in the light of the literature of evolution, an attempt to record and, if possible, interpret some of the most interesting and important phenomena of human beginnings in the individual and in the race."

The plan and scope of treatment is suggested by the titles of the different chapters. They are as follows:

I. The Meaning of the Helplessness of Infancy; II. The Meaning of Youth and Play; III. The Resemblances of the Young; IV. The Periods of Childhood; V. The Language of Childhood; VI. The Arts of Childhood; VII. The Child as Revealer of the Past; VIII. The Child and the Savage; IX. The Child and the Criminal; X. The Child and Woman; XI. Summary and Conclusion.

The amount of matter contained in this work makes it a hand-book for the student of child anthropology; and it is also a contribution to education and to genetic psychology that no teacher or psychologist can afford to miss. Its five hundred compact pages present an astonishingly near approximation to the total contents of the nearly seven hundred works mentioned in the Bibliography, so far as they relate to the subject treated. The author is a master in the art of labelling books, résuméing a writer's thought and selecting key words and epigrammatic phrases. In every chapter a great crowd of witnesses is summoned. To take an example at random, on one page (p. 142) Herbert Spencer, the philosopher, Dr. Lukens, the educator, Steinthal, the psychologist, Dr. Brinton, the anthropologist, Herder, the litterateur, and Archdeacon Hunter, all contribute their evidence. On the next page Dr. Brinton and Dr. Lukens are recalled, and Dr. Tracy, Mr. Sutherland and Miss Wolff add their testimony. On the third Professor Kirkpatrick, Dr. Trumbull, Father Morice, Professor Sully, and Dr. Brinton are the witnesses. But the facts are skillfully marshalled and the witnesses are made to give their testimony in clear and concise language. The verbose Frenchman is made to compress his testimony into a sentence; the scientific German is required to omit details and the essential points of his contribution stand out more impressively; the amateur observer of children states his facts and omits his sentimentality; the self-styled paidologist, stripped of his self-consciousness, comes with his real offering in his hands; while

the scientist who has learned to write, and the writer who has expressed a scientific fact aptly are quoted verbatim, and each, from scientist to schoolboy, gives his testimony at the right time and in fitting sequence.

At the present stage of knowledge in child anthropology, the results consist largely of new problems and pregnant suggestions. Few definite conclusions are yet justified. Dr. Chamberlain's book is full of the former, but he has wisely refrained from much generalization.

This paucity of theory is at once a merit and a defect of the book—a merit because of the inadequacy of the data at present, a defect because the opinions and suggestions of one who has studied such an enormous amount of material are very fruitful. But while the author has been chary of personal opinion, the few inferences he does venture are important. Among them are the following: The child is prophetic quite as much as atavistic. Each child is potentially a genius, and the genius is largely such because in him the childish elements persist. Woman is more generic than man, and the child more generic than woman. And in childhood is the stage where the evolutionary process occurs. The general position to which the writer is led is illustrated by one of the closing paragraphs of the book. "The child, in the helpless infancy of his first years, in his later activity of play, in his naïveté and genius, in his repetitions and recapitulations of the race's history, in his wonderful variety and manifoldness, in his atavisms and his prophecies, in his brutish and in his divine characteristics, is the evolutionary being of our species, he in whom the useless past tends to be suppressed and the beneficial future to be foretold. In a sense, he is all." W. H. B.

Plan of Organization of the College Entrance Examination Board for the Middle States and Maryland and a Statement of Subjects in which Examinations are Proposed. pp. 38.

This important plan was adopted May 12, 1900, and represents the following universities:—Columbia, Cornell, Pennsylvania, Union, Colgate, New York, Rutgers, Vassar, Bryn Mawr, and Princeton. Under its provisions these institutions and any other college in the Middle States or Maryland with a freshman class of not fewer than fifty students, choose annually five members—one of whom must represent secondary schools—who shall formulate the ground to be covered by secondary fitting schools as tests of college admission in botany, chemistry, English, French, German, Greek, history, Latin, mathematics, physics, and zoölogy. This Board designates each year a college teacher as chief examiner with two assistants—one of whom must be a secondary school man—to prepare papers, appoint a staff of readers to inspect and rate all answer books and to distribute returns. All these officers are to be paid. Answer books are marked on the scale of 100, above 90 being excellent, 90–75 good, 75–60 fair, 60–50 poor, and below 50 very poor. Each candidate before examination is to pay $5. All books marked below 60 are to be kept for two years. The first pamphlet defines the ground covered for examination in the above subjects.

It is significant that the Johns Hopkins has kept aloof from this scheme, and still more so that it was not adopted and indeed met with no general favor by the New England Association. The objections to it are the general objections to uniformity, over organization, and official and mechanical perfection which smacks of French methods and tends toward those of China. With such an institution, it is plain that colleges themselves would be to some extent marked, for each would have to determine the per cents below which it would not receive students. All such plans are bad for fitting schools, and the teachers

in them, because they allow no freedom and fail to recognize the partial sense in which a school or even a college is not a geographical location or even an institution, but a state of mind made up of environment tradition, and morale. The higher education becomes, the less monotony and system and the more freedom and individuality should come into play. Over organization closes the great open questions, loses sight of basal principles, has to make colossal assumptions, and is in general more akin to senescence and the over specialization of moribund tissues than to the plasticity of youth. There is another ideal very different from that of committees of ten, twelve, and fifteen, or the formulæ of the modern language or biological associations, viz., that of qualifying teachers and so placing them that their opinion as to the fitness of students to go on to college will be the best of all tests. Just in proportion as an institution becomes big and overgrown, so that the individual members are submerged, the greater becomes the necessity for this kind of mechanism, of which New York education, both State and city, is perhaps the most full blown type in this country. It still remains for this Middle States Board and its advocates to construct the 12,000 Chinese examination cells, which will be necessary for the crowning effectiveness of the scheme. On the other hand, just in proportion as institutions are small and can develop rather than repress individualities, they not only do not need but far transcend such schemes. Does any one seriously believe that the simple statement of an able English teacher like Professor Thurber, of the Boston Girls' High School, Professor Collar, of the Roxbury Latin School, or Dr. Everett at Quincy, that a boy or girl was fitted in his subject to enter college, would not far surpass in value all the tests that the mechanists with all their enchantments can devise or bring to bear? Probably after all, the saving quality of such a scheme is that it cannot be enforced.

Soziale Pädagogik auf erfahrungswissenschaftlicher Grundlage und mit Hilfe der induktiven Methode als universalistische oder Kultur-Pädagogik, von PAUL BERGEMANN. Theodor Hofmann, Gera, 1900. pp. 615.

This author agrees with Nietzsche that some time the race will have no other serious topic of thought than education; that everything is to be hoped for, but that teachers are the chief obstacles in the way of progress, and all depends upon whether they can themselves be trained and taught to educate themselves. First of all, the idea and possibility of education, its limitations, necessity, the duration of educational activity, its functions, and the impossibility of any pedagogy that is of general validity, are set forth.

The second part is devoted to the social bases of the educational doctrine, the inadequacy of the individualistic view, the social dependence of the individual life, the sphere of social life and its origin and development, culture as a product of common life and common property, the motives of common life and the goal of pedagogy, the structure and organization of the social soul; its general and special functions; and the means of social education.

The third part undertakes a theoretical construction of the doctrine of social education as a "Kultur" pedagogy. Here the writer treats of domestic and public education and their relation, the vanities of educational instruction, the subject and the objects of education, the mode of treating the different functions of education, culture and occasional instruction, practice, play, and discipline, the organization of public education, its inner structure, the critique of the formal stages of the Herbartians, choice of the material of instruction, criticism of the Herbartian doctrine of culture stages and concentration.

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The fourth part is devoted to the protection of children and popular education, and treats of lucrative activities of children and their dangers—intellectually, morally, and physically—reading saloons and book clubs, popular lectures and reading courses, museums, æsthetic and social amusements, and finally ethical and religious culture.

This book should be welcomed as marking important new departures. It is indeed remarkable that a German writer on education should have so thoroughly emancipated himself from the arid and jejune formulæ of Herbart.

Principles of Religious Education. A course of lectures delivered under the auspices of the Sunday School Commission of the Diocese of New York with an introduction by the Right Rev. HENRY C. POTTER, LL. D. Longmans, Green & Co., London, 1900. pp. 292.

These lectures were given in the fall of 1899 in St. Bartholomew's Church, New York City. The topics are the following:—religious instruction and its relation to education, by Professor Nicholas Murray Butler; the educational work of the Christian Church, by Bishop Doane; religious instruction in England, France, Germany and the United States, by Professor Charles De Garmo; the content of religious instruction, by Dean Hodges; the Sunday School and its course of study, by Rev. Pascal Harrower; the preparation of the Sunday School teacher, by Dr. Walter L. Hervey; the religious content of the child mind, by President G. Stanley Hall; the use of biography in religious instruction, by Professor Frank M. McMurry; the use of geography in religious instruction, by Professor Charles F. Kent; the study of the Bible as literature, by Professor Richard G. Moulton.

Mädchenerziehung und Frauenberuf, von ALBERT MOLLBERG. Berlin, 1900. pp. 168.

The family is the paradise of the child and should go hand in hand with the school. Family education, however, is individual, many sided, and cultivates only noble interests. The house mother should take the right kinds of walks and very sedulously avoid wrong walks with her children, and should overcome any reluctance she may feel to wandering with them. The family must enlarge its boundaries; the man must make himself felt or youth will be made too tender. The second part condemns evening work for school children and tells us how to form a fit sphere of thought, how to reach religion, history, the vernacular language, rudimentary geography, nature, arithmetic, and foreign languages. The shady side of the school is seen in the one-sided education of women, who are to be mothers. Every woman should be a friend of nature for pedagogical reasons. There must be more attention given to physical culture; the eye, hand, ear, voice and lungs must be trained; the power of coherent speech developed; verbalism and learning by heart should be reduced to their lowest terms. The lower classes should give their time mainly to collecting direct impressions of things and not in winning ideas. There ought to be criticism and supervision as a kind of pedagogical police, and the lost equilibrium between instruction and guidance should be restored. There should be an individual book kept for each pupil and plenty of individual intercourse between each and the teacher. Occasional evenings should be devoted to the parents, and approval and punishment should be emphasized. Finally, as a kind of harvest, ideas should be transformed into action, and this stage of education most needs transforming. The writer would accomplish this in part by means of elaborate Christmas celebrations, associations to help the

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poor, days commemorative of events in German history, plenty of excursions, games, and school devotions.

Nature Study and the Child, by CHARLES B. SCOTT. D. C. Heath & Co., Boston, 1900. pp. 618.

The dandelion in botany and the rabbit in zoölogy are made the basis of an exhaustive study through the first ninety pages. Chapter (3) is entitled, what is nature study; (4) its aim to develop the individual child; (5) to adapt him to his environment; (6) its limitations to nature and man as the two centers of education; (7 and 8) principles that determine method (although here, the laws of the child's mind are merely the old-fashioned Herbartian dogmas of sense, apperception, interest, and imagination); (9 and 10) the order of study; (11) expressive work; (12) relations of nature study to reading and literature; (13) to geography and arithmetic: (14) selection and sequence; (15) a graded course. Part II, nearly one-half the book is devoted to detailed outlines of study for each month of the school year from September to June, both inclusive. It is a comprehensive and able work but shows little knowledge of the recent lines of study either in psychology or child study. That there is a better point of view and method for nature work imminent, which this author does not see, we have no doubt. It is, nevertheless, one of the very best of the many books of its kind and standpoint that have lately appeared.

BOOK NOTES.

The Temple Primers. The Macmillan Co., New York, 1900. Price, 40 cents.

The Human Frame and the Laws of Health, by DRS. REBMANN and SEILER, Trans. by F. W. Keeble. pp. 148.

On the Exercise of Judgment in Literature, by W. BASIL WORSFOLD. pp. 98.

These seem to sustain the high character of the volumes we have previously noted in this series.

(1). *Homer to Theocritus*, by EDWARD CAPPS. pp. 329.
(2). *The Human Nature Club*, by EDWARD THORNDIKE. pp. 231.
(3). *Grecian History*, by JAMES RICHARD JOY. pp. 298.
(4). *The French Revolution*, by SHAILER MATHEWS. pp. 297. Chautauqua Press, New York, 1900.

Especially interesting in the above is Thorndike's ingenious attempt to present psychological rudiments in the popular form of dialogue in which very concrete practical cases are discussed with special reference to teaching and with notes by the editor at the close of many of the nineteen chapters summing up in more psychological terms their content.

Der höhere Lehrerstand in Preussen, seine Arbeit und sein Lohn, von HEINRICH SCHRÖDER. Lipsius u. Fischer, Kiel u. Leipzig, 1899. pp. 94.

This is an investigation upon the mortality of teachers in higher schools and a plea on this basis of the high mortality for a radical reconstruction of the pay roll in the gymnasia and real schools.

Report of a Visit to American Schools for the Deaf and Further Contributions to the Question of Methods, by J. HEIDSIEK. Trans. Geo. W. Veditz. Rochester, N. Y., 1900. pp. 59.

This writer gives an interesting presentation of his investigation here. He would have separate instruction in speech and language; articulation and lip reading through the whole course. Language work should be made on the manual alphabet, but should retire in the upper years more in favor of speech. Illustrative pantomime should be used in all stages, but the conventional sign language should not be tolerated.

Outline Studies in the History of Education, by ARVIN S. OLIN. Lawrence, Kansas, 1900. pp. 120.

These are the outgrowth of seven years' class room work in the University of Kansas. The outlines of each of the fifty-two lessons are given on one page and the references upon the opposite.

The Art of Study, by B. A. HINSDALE. American Book Co., New York, 1900. pp. 266. Price, $1.00.

The writer would shift the center of gravity in the school by making the pupil the center of the system and placing the teacher in his proper orbit. With this view he discusses recitation, attention, interest, will, thoroughness, methods, feelings, with a few references at the end of each of his twenty-two brief chapters.

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Die deutsche Litteratur des Neunzehnten Jahrhunderts, von RICHARD M. MEYER. Georg Bondi, Berlin, 1900. pp. 960.

This is an unique and very valuable work by a writer who has carefully read most of the authors he discusses. Perhaps the best treatment is given to Nietzsche, Gerhart Hauptmann, Gottfried Keller and Suderman. Many of the chief works of the last quarter century are briefly digested and minor authors briefly characterized. Each of the ten chapters treats of those prominent in one decade. There are ten full page illustrations, Keller, evidently the author's favorite, occupying the frontispiece.

Victor Serenus. A Story of the Pauline Era, by HENRY WOOD. Lee & Shepard, Boston, 1900. pp. 502.

This book is not on the conventional lines of the modern realistic novel and will not please those who think the didactical element has no place and that philosophy does not belong to a novel.

Elements of Rhetoric and English Composition, by G. R. CARPENTER. The Macmillan Co., New York, 1900. pp. 140. Price, 50 cents.

This is designed for high school courses and treats in separate chapters description, narration, exposition, argument, persuation, verse, and minor forms of composition. Under each well chosen selections are given with exercises and suggestions.

The Meaning of History, and Other Historical Pieces, by FREDERIC HARRISON. The Macmillan Co., New York, 1900. pp. 482. Price, $1.75.

This valuable and comprehensive treatise considers the use, connection and great books of history; historical schools; the thirteenth century; the Revolution of 1789; the ancient, mediæval, modern, and ideal city; Rome and Athens revisited; Constantinople and its problems very fully treated; Paris and London and their transformations.

Carlyle's Essay on Burns, with with the Cotter's Saturday Night and *Other Poems from Burns*. Edited by Willard C. Gore. pp. 186.

Ivanhoe, by SIR WALTER SCOTT. Edited by Alfred M. Hitchcock. pp. 480.

Macaulay's Essay on Warren Hastings. Edited by Margaret J. Frick. pp. 227. The Macmillan Co., New York, 1900. Price, 25 cents each.

These attractive booklets, like others of their series, are well furnished with introductory matter, notes, maps, etc.

Führer durch den Rechtschreib-Unterricht gegründet auf psychologische Versuche und angeschlossen an seine Entwicklungsgeschichte und eine Kritik des ersten Sach-und Sprachunterrichts, von W. A. LAY. Otto Nemnich, Karlsruhe, 1899. pp. 202.

Führer durch den ersten Rechenunterricht naturgemässes Lehrverfahren gegründet auf psychologische Versuche und angeschlossen an die Entwicklungsgeschichte des Rechenunterrichts, von W. A. LAY. Otto Nemnich, Karlsruhe, 1898. pp. 156.

Methodik des Naturgeschichte-Unterrichts und Kritik der Reformbestrebungen auf Grund der neueren Psychologie, von W. A. LAY. Otto Nemnich, Karlsruhe, 1900. pp. 123.

The history of orthography; the development of its methods; its psychology and finally the proper way of treating the subject is developed.

The history of number work forms the introductory chapter and

gives a concise account of the reforms of Ryse, Basedow, Pestalozzi, Diesterweg, Grübe, Knilling, Tanck, and Beetz. The second part treats of the development and nature of number, groups, series, number pictures, the use of marks and fingers, etc., and the third part considers the methods of teaching number.

This admirable compend begins with Comenius and considers the psychology of the development of object lesson methods, of insight and of the Gemüth. The latter is devoted especially to the discussion of moral, æsthetic and religious interests. These three works are valuable contributions to pedagogy.

"*Festschrift*," *in Honor of Abraham Jacobi, M. D., LL. D.* To Commemorate the Seventieth Anniversary of His Birth. May 6, 1900. The Knickerbocker Press, New York, 1900. pp. 496.

Fifty experts, mainly German and American, contribute articles on various children's diseases and their treatment, to celebrate the seventieth birthday of this distinguished expert. The articles seem to differ as much in value as in length.

NOTES AND NEWS.

Mr. Jinzo Naruse, sometime student of Clark University, and who has been for years devoting himself to the study of the education of girls, has at length secured the concession of a university to them in Japan, where the contributions have already reached 3,000 yen and the Mitzui family have given a splendid suburban site of seven acres near Tokio. Naruse has already been named president, and the institution is to open in April, 1901.

The San Franciscan Board of Education, C. W. Mark, President, adopted in July last a new course of study for four years, the preparation of which in studied and careful detail exceeds anything known to the writer in this country. It makes a volume of 311 pages, and extends from the primary to the high school, both inclusive.

Viola R. Olerich is advertised by some as the most advanced juvenile scholar on record. She has been exhibited in many American cities, and is described in the September Strand Magazine. She was born February 10, 1897, in Des Moines, and adopted by Professor Olerich at the age of eight months in order "to test in a practical way a new theory of education which we believe to be much superior to any system heretofore used." No attempt was made to select a particular child, but an average one in good health was sought. She was, however, somewhat pale and sickly, but now weighs over thirty pounds, and is a pretty blonde. She was early taught to amuse herself; allowed always to eat as much of everything as she desired at or between meals, a lunch counter always near; never spoken harshly to, and acquired everything she knows in the form of play. Books were toys. She knew her letters at seventeen months, and at two years and eleven months could read at sight, and with force almost anything. At three she could read English, German and French, and was taught by the sentence method. At twenty months she could read the digits and tell nine colors taught her by large figures on blocks hung up and given her when she called for them. Now she reads numbers to octillions; can draw at dictation almost any geometric figure. At one year and nine months she knew the flags of twenty-five nations; finds almost any prominent geographical place in Frye's Geography; at one year and ten months knew the portraits of over a hundred famous men and

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women, and a month later could name thirty-two kinds of seeds and twenty-five of leaves, and point out nearly all the bones in the body. Before she was one year and eleven months old school examiners found she knew 2,500 nouns of concrete things and 500 more abstract ones. At two years she knew twenty-two punctuation marks taught her on cards; at three spelled long lists of hard words. She uses a typewriter with considerable facility and alone, and is described as quite as bright in other matters as in feats of memory, which she sometimes exhibits in public.

The new *Indian Review*, which began last January, published at Madras, has interesting educational articles on the new university of research, Hindu philosophy, Studies in the Bengal schools, University examiners, etc.

Arthur L. Frothingham, of Princeton, New Jersey, one of the most profound ontologists in the country, and a bitter opponent of the monism and pantheism so prevalent in our day, has just issued an interesting thesis on the philosophy of entity more or less supplementary to his "monistic law of production by derivation," which will deeply interest all concerned with metaphysics.

Professor Pohlmann, the representatative of ancient history in the University of Erlangen, has just printed an interesting contribution to the history of the freedom of teaching, entitled *Socrates und sein Volk*, wherein individuality and the spirit of the masses are set forth in striking contrast, Socrates representing individuality in its conflict with popular opinion and his death being the tragedy of free thought.

Stopford A. Brooke's new hand-book of English Literature (Macmillan, 1899), starts from the period before the Norman Conquest, to which the first chapter is devoted, and ends with the death of Scott in 1832. It is a comprehensive and well proportioned primer, and has a convenient chronological table and index.

The insanity of youth and adolescence (Dementia Praecox), which has attracted so great attention of alienists in recent years, and seems to have been one of the chief factors in the recent transformation of Kraepelin's views, has been admirably summarized by Dr. E. Trömner, an expert in insanity, in a brief monograph with the above title, published in 1900 in Halle.

Professor Theodore Hough has given us a convenieut and admirable summary of Swedish gymnastics (G. H. Ellis, Boston, 1899), which is separately printed. It is judicious and impartial.

D. C. Heath has undertaken to issue fortnightly a series of home and school classics in paper covers for ten cents each, "The Wonderful Chair," "Goody Two Shoes," "Hammerton's Chapters on Animals," "The Tempest," and Mrs. Ewing's "Jackanapes" are forefruits.

Dr. Smith[1] has presented an interesting and unique study in sociology based upon long experience among the Chinese, for whom he "has come to feel a profound respect for their numerous and admirable qualities." Behind this race lies an unexampled past and before it a wonderful future, to realize which, however, certain disabilities must be removed. The author describes first the institutions and usages of a public character, the village roads, ferry, wells, shops, theaters, schools, temples, markets, hunts, weddings, headsmen, crop watchers, loan societies, religious observances, etc.; while the second part is devoted to family life, and considers boys, men, girls, women, and the equilibrium of the Chinese family generally. A concluding chapter asks what Christianity can do for this country.

[1] Village Life in China, by Arthur H. Smith, New York, 1899.

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